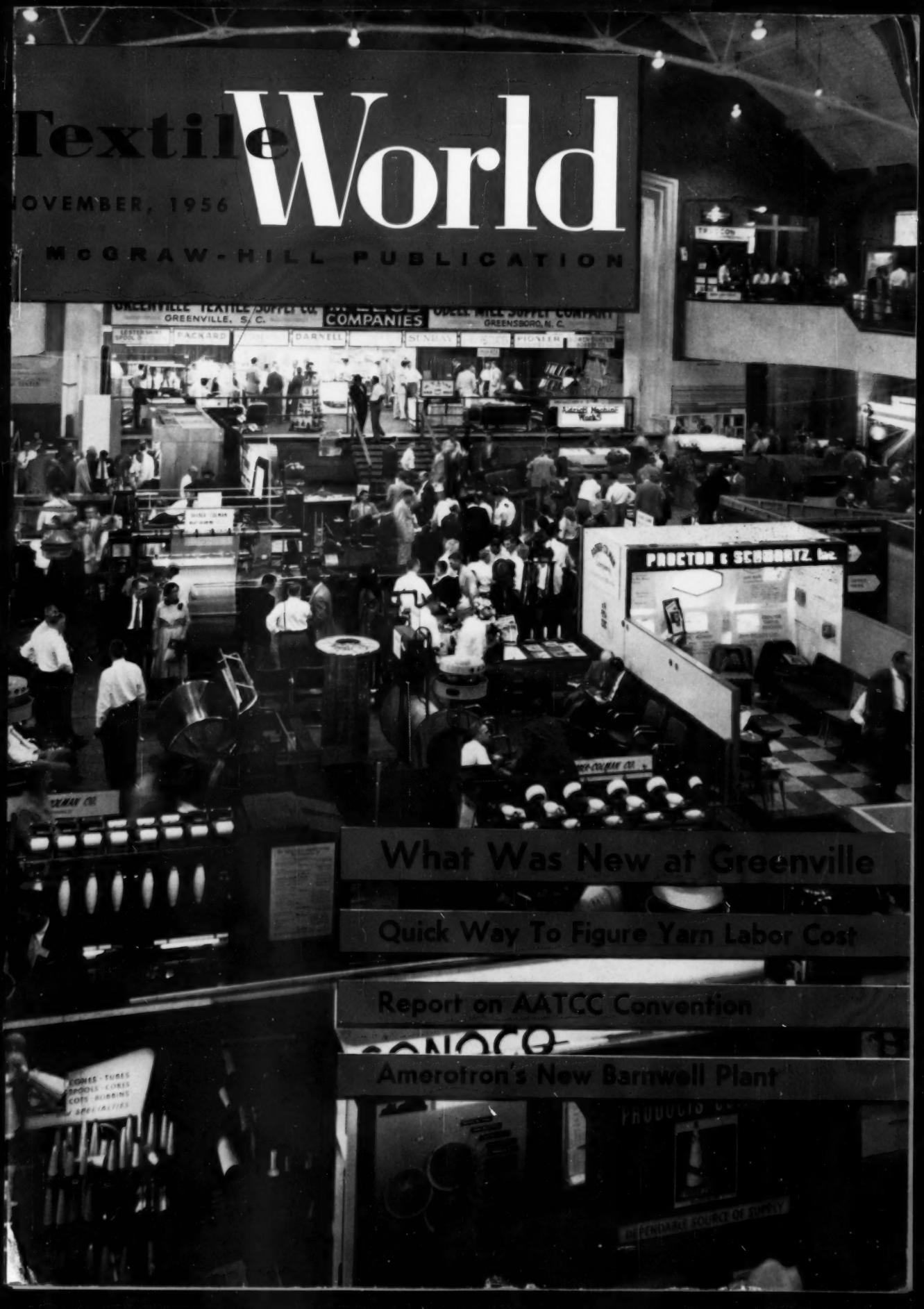
Textile World
NOVEMBER, 1956
McGRAW-HILL PUBLICATION
COMPANIES
GREENVILLE, S. C.
GREENSBORO, N. C.
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PROCTOR & SCHWARTZ, Inc.
What Was New at Greenville
Quick Way To Figure Yarn Labor Cost
Report on AATCC Convention
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VELVAMINE "T"

NON YELLOWING DURING HIGH TEMPERATURE DRYING OR CURING

•

RESISTANT TO LIGHT & HEAT EFFECT

•

EXCELLENT COMPATIBILITY IN ACID AND ALKALI SOLUTIONS

•

DOES NOT AFFECT THE LIGHT FASTNESS OR SHADE OF DYESTUFFS

•

REDUCES STATIC ELECTRICITY IN VARIOUS FIBER STOCK, YARNS & FABRICS

The finisher likes Velvamine "T" for its simple, fool proof application.

The manufacturer finds improved abrasion resistance, better lubricity and sewability, with no needle burn, and increased production.

The retailer is glad to offer garments of finer quality, and features of Velvamine "T"

WRITE FOR TECHNICAL SERVICE BULLETIN.

Manufacturing Chemists

Refined PRODUCTS CORPORATION

Lyndhurst • New Jersey

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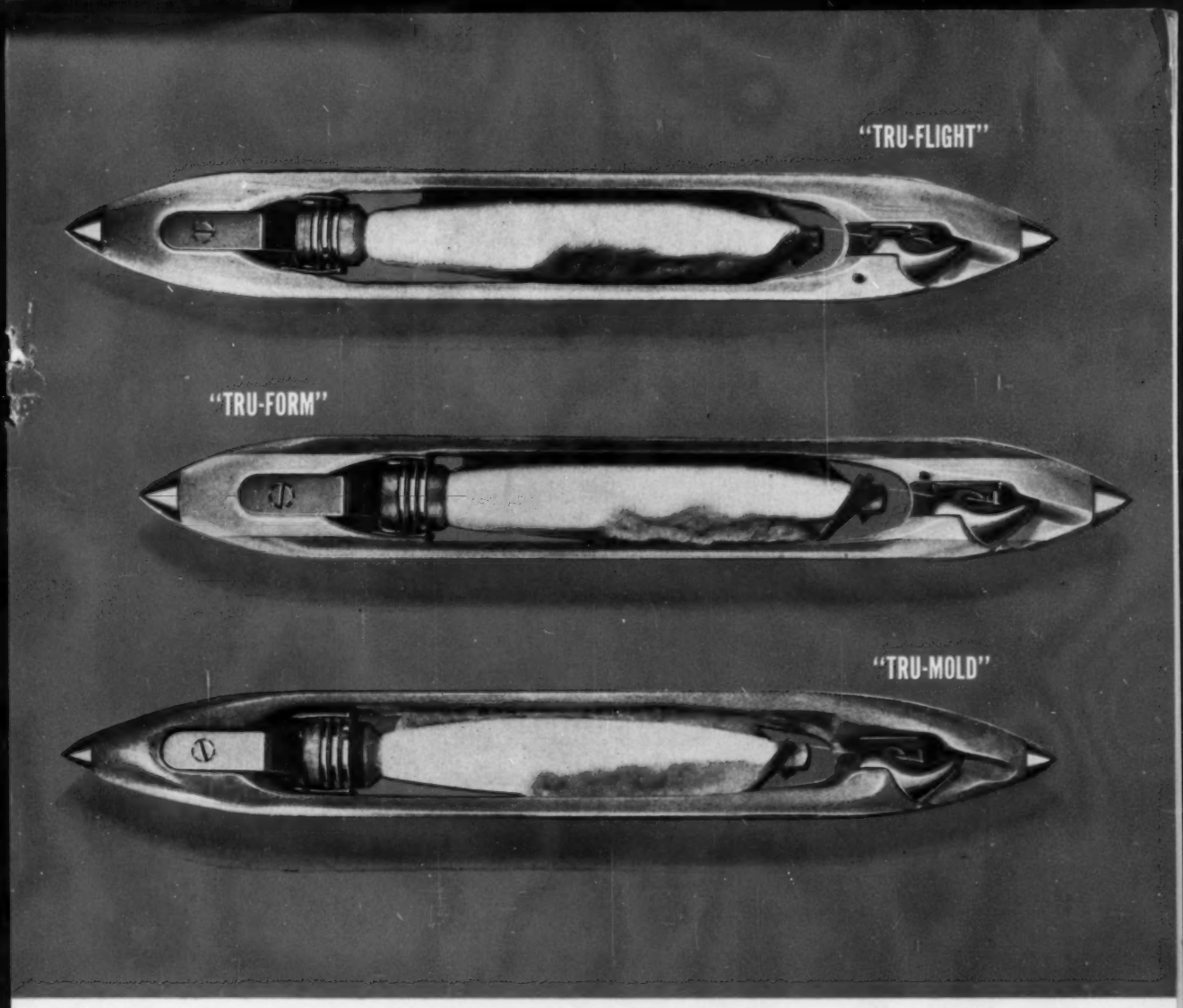

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"TRU-FLIGHT", "TRU-FORM", and "TRU-MOLD" shuttles incorporate the finest in materials and design. From all-dogwood to the completely new molded construction, each is engineered to offer *greater shuttle economy* and *improved loom operation.*

Lower *your* weaving costs . . . standardize on Draper shuttles, today.

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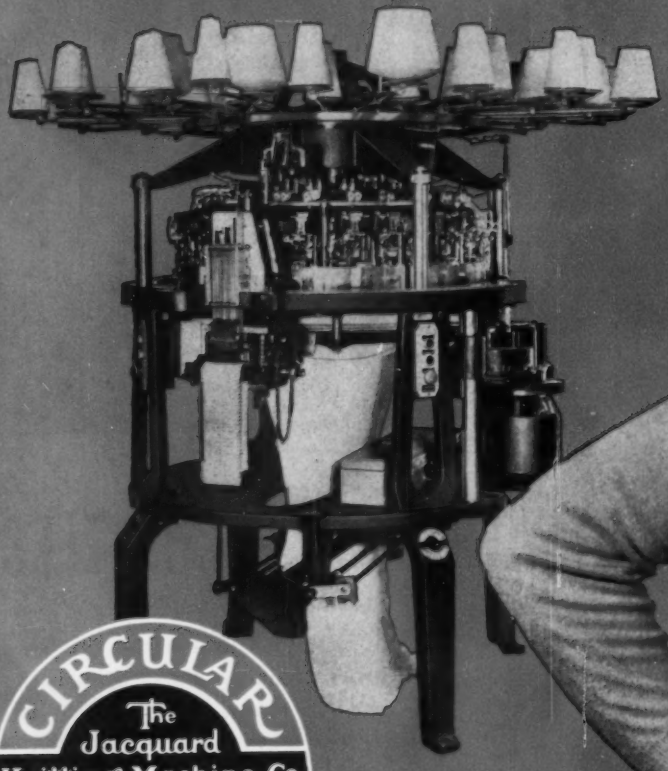
NEW . . . 32" Diameter, 24 Feed, Fully Automatic

CIRCULAR JACQUARD TAI-24

Ability to meet changing fashion demands has made the Jacquard Knitting Machine Co., Inc. the world's foremost manufacturer of Circular Knitting Machines.

The *new* TAI-24 is a 32" diameter, 24 feed, fully automatic, multi purpose Interlock, Plain Transfer and Rib Knitting machine . . . features a new two-speed vertical drive side, three roller take-up and dogless head construction.



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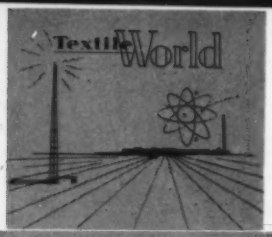

Developments To Watch

JAPANESE IMPORTS . . . will lose much of their sting Jan. 1, 1957. Sherman Adams, assistant to Pres. Eisenhower, announced Sept. 27 that Japan will put into effect a schedule of ceilings on exports of cotton goods to the U. S. These ceilings will be agreed on by Japan and the U. S.

Total exports will be limited to the level of imports in 1955, and ceilings on individual classifications will be set to avoid "undue hardship" by U. S. mills making specific cloth constructions.

These agreements are acceptable to U. S. mills.

Corrective ceilings will be placed on categories where Japanese imports already have caused much damage, such as velveteens and ginghams.

DACRON AND FLAX BLENDS . . . will soon be seen in high-fashion resort clothes. The new fabrics, made of 65% Dacron and 35% flax, will have the slubbed texture of flax. Prints will include brush-stroke florals, impressionistic designs, and stylized Persian patterns.

IRISH TWEEDS . . . will become more popular in the United States now that the Irish mills have adopted a realistic approach toward selling the American market. Instead of trying to unload great quantities of goods at low prices, Irish mills are offering small lots of tweeds that are uniquely Irish in design, weave, and color.

These fabrics are hard to duplicate here, and it is not economical to produce them in small lots. Consequently, there is little direct competition, except from imported high-quality English tweeds.

The policy is paying off for Irish mills. U. S. imports of tweeds and woolen fabrics from Ireland amounted to $632,822 for the year ended March 31, 1956, 124% more than the previous year.

METALLIC YARN . . . already used to decorate sheets, will be seen next in towels. Martex Div., Wellington Sears Co., is showing a new towel ensemble that draws its inspiration from an Indian sari. A wide border design at both ends of the towel is woven in metallic threads of three colors. The yarns are rounded and have a soft hand.

A NEW ACETATE STAPLE FIBER . . . for end uses requiring extra loft and resiliency will soon be available in quantity, according to Celanese Corp. of America. Called Celacloud, the fiber is said to provide a 52% increase in loft over regular acetate; it will be used for mattress felts and sleeping-bag, comforter, and pillow fillers.

U. S. COTTON EXPORTS TO INDIA . . . may not be "drastically reduced" after all, as was reported in these columns in September. Indian cotton brokers and manufacturers, who recently charged that American long-staple cotton is no good and that short staple is not up to sample, have turned sharply about face since the Suez trouble started.

The large supply of Egyptian cotton reported on hand appears to have dwindled overnight, and very little is being said about the 4.3-million bale crop of Indian short staple that is supposed to be produced this year.

To make matters more embarrassing for the Indian cotton importers, the Indo-Egyptian trade pact, signed two years ago, specifies that 60% of Indian payments are to be made in sterling. With Britain freezing sterling to Egypt, the Indian importers can't figure out how to pay for Egyptian cotton, even if it becomes available.

MAN-MADE FIBERS . . . for children's wear will become more popular, according to a research project recently completed at Iowa State College. Sixty-six children were given four complete outfits made of synthetic fibers and four outfits made of natural fibers to wear on alternate weeks. Seven mothers served as judges to determine care and wear factors.

Results: girl's man-made-fiber garments required 20% less care than those made of natural fibers; boy's man-made-fiber garments required 13% less care. Repeated launderings seemed to affect the two types of fibers similarly.

BLOUSE IMPORTS . . . from Japan during the first half of 1956 showed a rising proportion of silk and man-made-fiber content. This fact ties in with the Japanese policy to build up the position of synthetic fibers at the expense of imported cotton and wool.

CONTINUED ON PAGE 6

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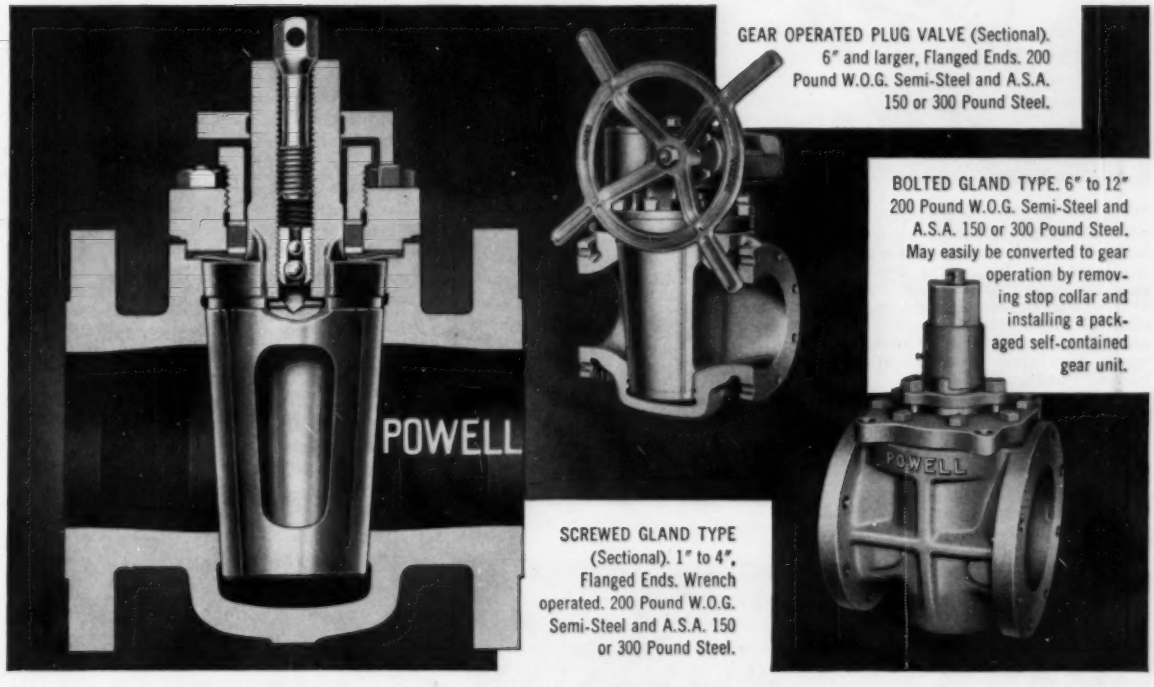
POWELL

Lubricated Plug VALVES



GEAR OPERATED PLUG VALVE (Sectional). 6" and larger, Flanged Ends. 200 Pound W.O.G. Semi-Steel and A.S.A. 150 or 300 Pound Steel.

BOLTED GLAND TYPE. 6" to 12" 200 Pound W.O.G. Semi-Steel and A.S.A. 150 or 300 Pound Steel. May easily be converted to gear operation by removing stop collar and installing a packaged self-contained gear unit.

SCREWED GLAND TYPE (Sectional). 1" to 4", Flanged Ends. Wrench operated. 200 Pound W.O.G. Semi-Steel and A.S.A. 150 or 300 Pound Steel.

Powell Lubricated Plug Valves maintain our 110-year tradition of quality and precision. Only the finest available materials are used. And painstaking quality control is rigidly enforced through each and every step of manufacture.

Features include quick and positive operation—just a quarter-turn to open or close. Lubricant grooves surrounding each port provide a positive seal when the valve is closed. In an open position, seating surfaces are not exposed.

Valve users who want one source of supply for lubricated plug as well as all types of bronze, iron, steel and corrosion-resistant valves will want full details on Powell Lubricated Plug Valves.

Available in Steel and Semi-Steel through distributors in principal cities. If none is located near you—or if you need help on valve problems—write direct to

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BRONZE, IRON, STEEL AND CORROSION-RESISTANT VALVES

The Wm. Powell Company, Cincinnati 22, Ohio . . . 110th YEAR

The source of supply for all valve needs!

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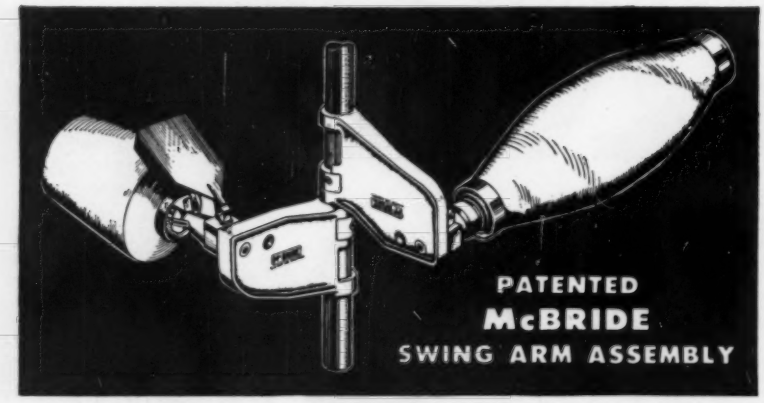
McBRIDE CREEL CORNER

NEW SWING ARM ASSEMBLY FOR McBRIDE CREELS

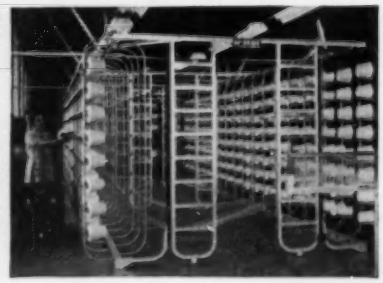


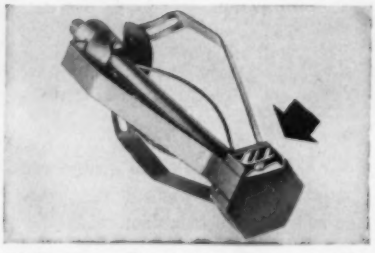
To meet the demand for equipment to accommodate the modern heavier and longer yarn packages, Edward J. McBride Co., Inc., have developed a new Swinging Package Arm for Magazine Creels. Besides being of more substantial construction, the new arm has an adjustment to vary the swing radius while retaining the patented Ball Retent Positioning Lock.

The Bowed Spring Spindle is a separate detachable unit making replacement or repositioning a simple operation without any dismantling.

McBride Quik-Change Cone Holders and Combination Adapters for Chemstrand and DuPont pirns are used in conjunction with the Bowed Spring Spindle. Together the Bowed Spring Spindle and the Quik-Change Cone Holder will handle most types of packages.

A new, self-adjusting Anti-Snagging Pad which follows the back edge of the package during draw-off is also featured and is optional. This thick polyurethane pad gently but firmly follows the contour of the package and is the only self-adjusting pad that continuously keeps the yarn from falling off the back of the cone.





McBRIDE QUIK-CHANGE CONE HOLDER

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CREELS for every purpose, CONE HOLDERS, STOP MOTIONS, TENSION CONTROLS, WARP BEAMS, FLANGES, CARPET INSPECTION TABLES, METAL AND WOOD ROLLS.

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FINE-DENIER RAYON YARN . . . that approaches nylon in strength will soon be available, according to American Viscose Corp. The yarn will be 1100 to 2200 den., with or without twist, 1.0 to 2.25 den. per filament. This is the first Avisco high-strength rayon yarn to be offered in low deniers per filament. The yarn will be used in auto tires.

TEXTILE RETAIL SALES . . . could be upped by redesigning point-of-sale hang tags. Burlington Industries, for example, uses a colorful apple cutout for its Applesheen fabrics. The apple catches the customer's eye and then puts over a message on the wearing qualities and care of the fabric. Burlington sales officials say the tag does a much better selling job than standard hang tags.

SUMMER-WEIGHT WOOL SUITS . . . are becoming more popular. The 1956 output of these suits was up 23% over the same seven-month period last year. Further improvement is expected next year.

SURPLUS COTTON . . . may find new outlets in industrial usage if the five-man commission appointed by Congress to study the subject is successful. The commission, which has a $150,000 appropriation, is expected to report by next June 15 on possible new legislation to encourage the development of new and improved industrial goods made from surplus fibers.

MILITARY FABRICS . . . will contain more man-made fibers and less cotton, according to current trends. Military man-made-fiber consumption increased from 198,000 lbs. during the first quarter of 1954 to 1,845,000 lbs. during the comparable period of 1956. Cotton consumption dropped from 11-million pounds to 10.3-million pounds for the same period.

MEN'S-HOSIERY COLORS . . . will swing toward more conservative shades. Argyles and solid-color numbers are now being made with a prominence of blacks, navies, browns, and grays. Pattern colors follow the same trend, and they blend rather than contrast with the main color.

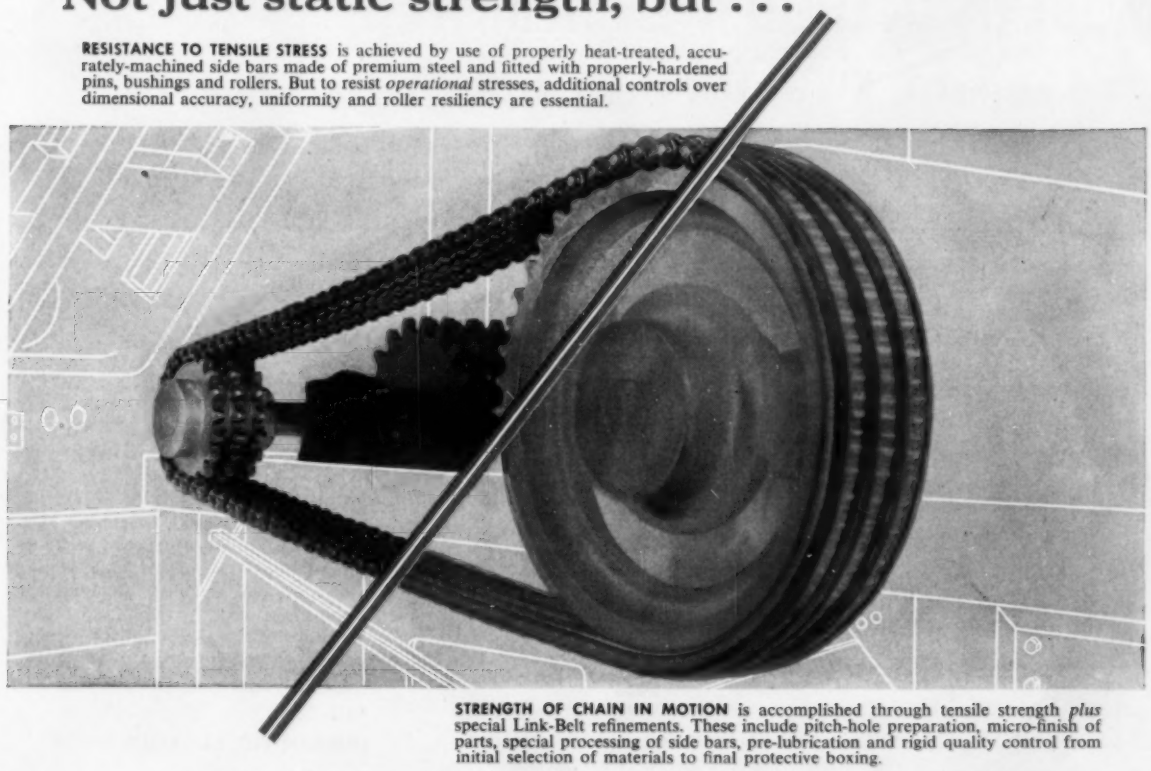
SILK DEGUMMING . . . traditionally done with olive-oil soap and more recently with bacterial enzymes, may be done in the future with bromelain, a by-product of pineapple processing.

CONTINUED ON PAGE 212

← For more data, write this page number on Reader-Service card.

Not just static strength, but . . .

RESISTANCE TO TENSILE STRESS is achieved by use of properly heat-treated, accurately-machined side bars made of premium steel and fitted with properly-hardened pins, bushings and rollers. But to resist *operational* stresses, additional controls over dimensional accuracy, uniformity and roller resiliency are essential.



STRENGTH OF CHAIN IN MOTION is accomplished through tensile strength *plus* special Link-Belt refinements. These include pitch-hole preparation, micro-finish of parts, special processing of side bars, pre-lubrication and rigid quality control from initial selection of materials to final protective boxing.

dynamic strength

assures longer work-life for LINK-BELT Roller Chain

In addition to known tensile loads, roller chain in motion is frequently subject to other operating stresses. Engagement with sprockets . . . shock of starting loads . . . centrifugal loads—there are many similar stresses.

Link-Belt's solution: greater dynamic strength, achieved through design, manufacturing and processing "extras" . . . plus a combination of other important refinements. And you see the results in smoother, more efficient performance that lasts measurably beyond the life of ordinary roller chain—cuts your drive and conveying costs.

Near you is a Link-Belt office or authorized stock-carrying distributor where you can get full information on the complete Link-Belt range of single and multiple widths, ¼ to 3-inch standard pitch, and 1 to 3-inch double pitch. Ask for your copy of 148-page Data Book 2457.

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ROLLER CHAIN & SPROCKETS

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PRE-STRESSING of multiple width chain provides uniform load distribution.

SHOT-PEENED ROLLERS have greater fatigue life, added ability to withstand impact.

CLOSER HEAT-TREAT CONTROL —coupled with rigid testing insures uniformity.

LOCK-TYPE BUSHINGS (applied on a range of sizes) end a cause of stiff chain.

MODERN DYEHOUSE EQUIPMENT

THE DEPENDABLE KWG SKEIN DYEING MACHINE

KWG Double Reel Skein Dyeing Machine —all stainless steel unit built in capacities to 1000 pounds.

FOR QUALITY DYEING
WITHIN INCREASED BUT MORE NORMAL TEMPERATURE and PRESSURE LIMITS

Perfection in dyeing—for natural and the new synthetic fibers—is yours with KWG Skein Dyeing machines. Rugged construction . . . improved ness of color—the permanence of tone—for that extra measure of sales appeal—without concern for costly high-temperature, high-pressure methods. Dual-operations possible including scouring, dyeing and shrink-proofing, or scouring, bottom bleaching and dyeing of pastel shades.

You can point the way to extra sales . . . extra profits . . . today by writing Klauder Weldon Giles. A KWG representative will be glad to survey your needs. If necessary, he'll design special equipment to your specifications. There's no obligation.

Klauder Weldon Giles MACHINE COMPANY

ADAMS AVENUE & LEIPER STREET • PHILADELPHIA 24, PA.

Letters From Readers

What's on your mind?

We welcome your comments. Whether you agree or disagree, with us or anybody else, we will be glad to have you air your views.

Unless you ask us not to, we will use your name and company connection when your letter is printed. If you prefer to have your opinions appear unsigned, we will respect your confidence by using only a set of initials.

Write to Editor, Round Table, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

GUARANTEED FABULOUS WAGE?

Dear Editor:

Disturbed by M.L.G.'s letter [TEXTILE WORLD, June, '56, p. 10]. But overwhelmed by Mr. Hume's salute [TEXTILE WORLD, Sept., '56, p. 8] to the overzealous critic of the textile industry from Pittsburgh.

What law guarantees a college graduate a privileged high salary? Granted, he has a degree, has passed numerous difficult courses, participated in many extracurricular activities. This proves he has the ability to learn, only. His salary in any field will progress on an even keel with his ability to learn and lead people.

This holds true regardless of which industry pays that salary, amount of beginning salary, or to whom he is related or acquainted.

The mental difficulty that most young college graduates find themselves struggling with today falls into a pattern as follows: (a) want more money than they are worth, (b) too impatient to learn and gain higher financial remuneration, (c) miss many fine opportunities by becoming complainers rather than leaders.

Recommend for all future leaders, "Power of Positive Thinking," [by] Norman V. Peale.

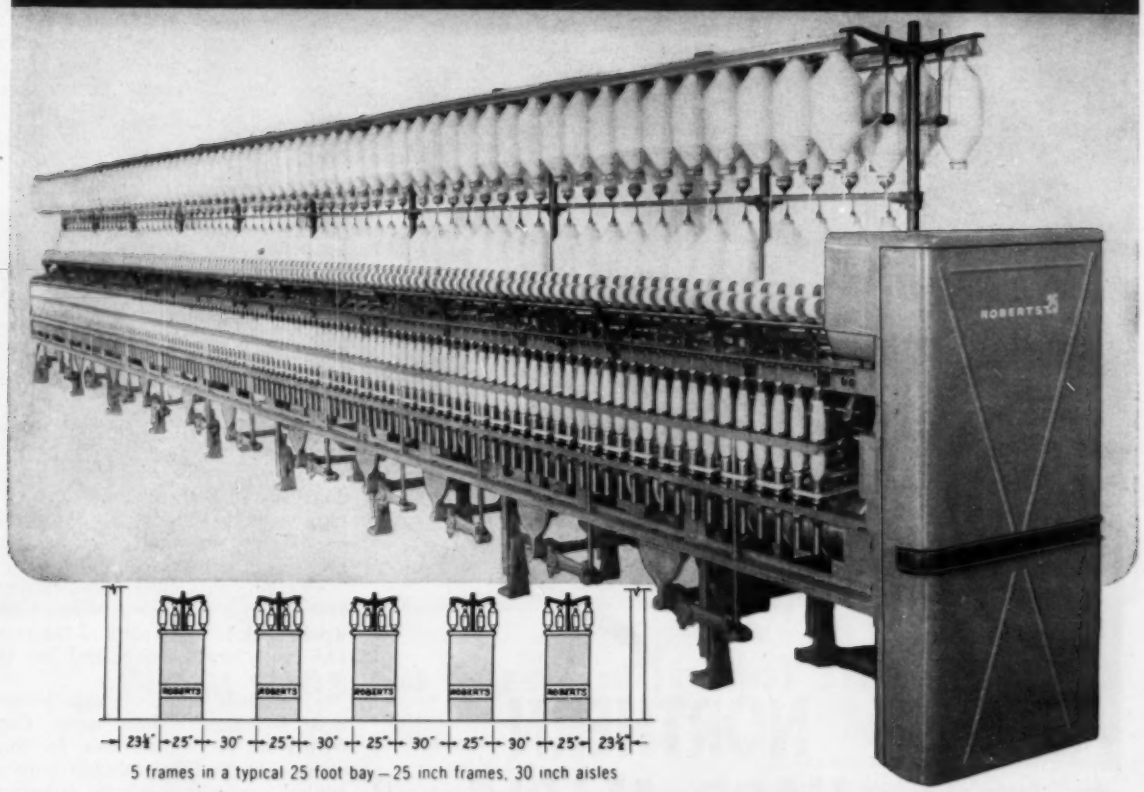
FRANK J. HURT, JR.
Burlington Industries, Inc.
Greensboro, N. C.

CONTINUED ON PAGE 10

← For more data, write this page number on Reader-Service card.

ROBERTS 25 SPINNING FRAME

- 25 inches wide
- 25% more yarn from same floor space
- 25% less building for same production
- 25% saving in building and utility cost



5 frames in a typical 25 foot bay—25 inch frames, 30 inch aisles

TRIED AND PROVEN. The Roberts 25 Spinning Frame is simple and straightforward, free from radical innovations or gadgets. It embodies all the tried and proven features most wanted in a modern spinning frame giving highest production and lowest maintenance.

ROBERTS DRAFTING. Roberts Double-Apron Drafting produces highest break factors, best yarn evenness and lowest ends down in a range of drafts from 10 to 60, for yarn numbers from 2's to 100's, in cotton, synthetics or blends.

SMALL, MEDIUM OR LARGE PACKAGES. The Roberts 25 Spinning Frame is available in gauges from 3 inches to 4½ inches and can be arranged for direct filling on 8 or 8¾ inch quills or for warp up to a 3 inch ring and 12 inch bobbin.

ALL BALL BEARING HEAD. The all ball bearing head design is outstanding in its simplicity and flexibility. Thirty greased-for-life ball bearings of one size are used and all plain bearings and studs eliminated. All gears in the head are hardened and have one pitch, one width, one bore and one size key, making them completely interchangeable. Two wrench sizes fit all shafts and tightening points. Draft Constant can be varied simply from 400 to 3200 and Lay adjusted for coarse or fine numbers by a simple gear change.

STANDARD FEATURES

Included as standard equipment are Roberts Ball Bearing Spindles, Roberts built-in Suction Cleaning, Roberts AeroCreels and 8 inch Cylinder Drives.

COMPARE ALL 3

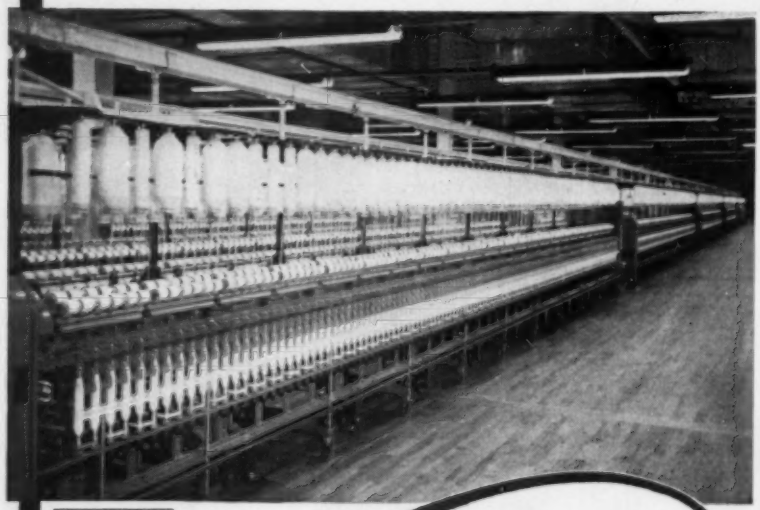
For high production, top yarn quality, large packages, low maintenance expense, dependability—and, at the lowest investment per spindle—Roberts Spinning is second to none in America today.

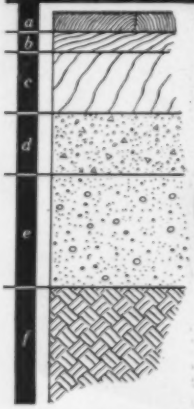
ROBERTS COMPANY

SANFORD, NORTH CAROLINA

For more data, write this page number on Reader-Service card. →

Greenwood Mills' ultra-modern ten-acre, one-story Durst plant





"Wedding the new with the tried-and-true"

NORTHERN HARD MAPLE

Above—(a) Finish floor of $25/32$-inch Northern Hard Maple; (b) intermediate floor of 1-inch treated pine; (c) sub-floor of 3-inch treated pine; (d) 3-inch layer of tar concrete; (e) 5-inch to 6-inch layer of crushed stone; (f) earth, compacted.

the finest floor that grows

Planned and designed by Greenwood Mills' own seasoned textile people, for utmost efficiency, the new, six-million-dollar Durst plant at Greenville, S. C., is emphatically, *not* radical, *not* revolutionary. *It's merely superb.* It's an object lesson in logical use of proved machinery, processes and principles, in a structure which experience says is exactly *right*. The vast floor areas of **MFMA** Northern Hard Maple offer a case in point. They're laid *on grade*, of course. They're laid on a proper base and laid properly. They'll endure. They'll support their great loads easily, with minimum vibration. The construction cross-section above deserves study. If you're building, remodeling, reflooring, our technicians at **MFMA** headquarters will be happy to provide all data available to aid you in obtaining "the finest floor that grows." Write—

MAPLE FLOORING MANUFACTURERS ASSOCIATION
Suite 592, Pure Oil Bldg., 35 E. Wacker Drive, Chicago 1, Illinois

FLOOR WITH* NORTHERN HARD MAPLE, *BEECH and BIRCH

. . . AND HE WENT

Dear Editor:

I sent in a remittance for one year's subscription. If for some reason it has been lost, you can cancel my order because I have resigned my position as overseer of carding. . . .

I may add that TEXTILE WORLD was the only worth-while magazine on textiles that I found interesting while I was in the overseer's capacity. . . .

In your March issue, I had a letter printed on "Why Mills Lose Competent Men" captioned ". . . And One To Go." And I did.

ATTILIO VITI

Providence, R. I.

CAP SPINNING

Dear Editor:

Although we agree with the first two parts of your answer to the question "Cap Spinning Is on the Way Out" [TEXTILE WORLD, July, '56, p. 143], we don't agree with the statement that cap spinning is preferred for coarse wool.

We would avoid spinning coarse fibers on cap frames like a plague. The yarn would be wild like a shaggy dog's coat. For such an effect the yarn might be OK, but there would be difficulty in winding or twisting the yarn.

The long wild fibers would project and entangle themselves. The ends would stick to other parts of the yarn and cause breaks, knots, and loss in production.

Fine fibers spun on cap frames make full, smooth, lofty yarns. Cap frames are economical only for fine yarns. These frames should have a conical cap with perfectly balanced brass tubes that carry an efficient lubricating device.

The top spindle speed may go as high as 10,000 rpm., and 80s worsted yarns may be spun with less breakage than on any other type of frame. Workloads can be increased, and the yarn quality would be the best.

WATSON J. WOOD

Knitters Ltd.
Lindsay, Ont.

CORRECTION

In their advertisement on page 235 of TEXTILE WORLD's September, 1956, issue, Watson & Desmond were incorrectly shown as representatives for Texture, Inc. This name should have been Textube Corp. We regret the error.

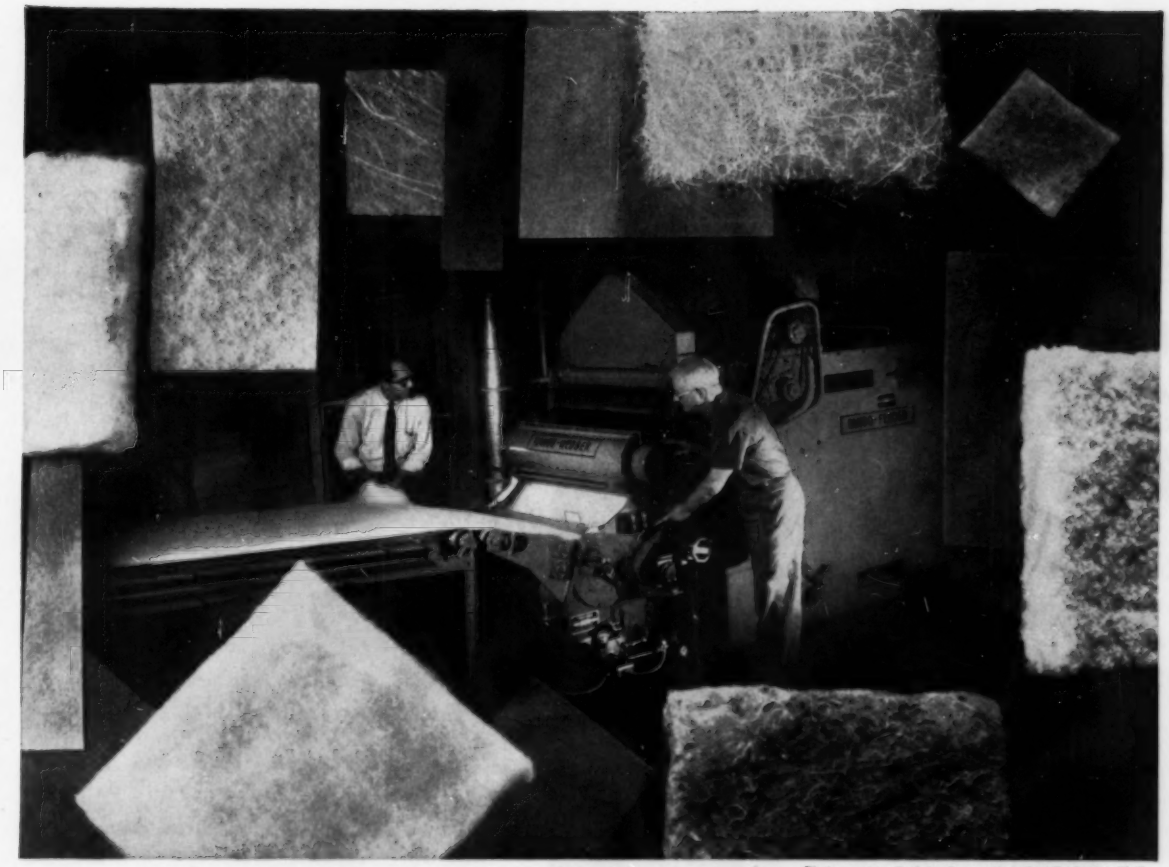
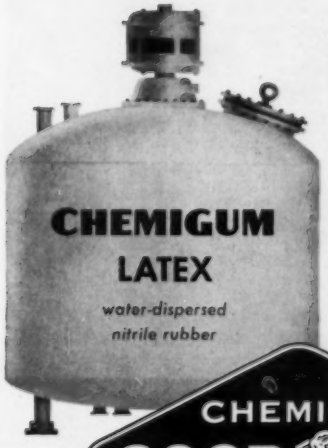


Photo courtesy Curlator Corporation, East Rochester, N. Y.

New way to form webs of intrigue



Pictured above is a quick and easy way to get into a fast-growing, profitable field. These ingenious machines convert waste or first-grade staple fibers – either animal, vegetable, mineral or synthetic – into versatile nonwoven fabrics, mats, wadding or felt, economically and efficiently.

Take cord or yarn wastes. By feeding them through the "webber" and impregnating the web formed with a bonding agent based on CHEMIGUM LATEX, one soon has a soft, smooth, porous, random fiber fabric of multidirectional strength.

CHEMIGUM LATEX is a colloidal dispersion of a butadiene-acrylonitrile copolymer. It is used in bonding agents to impart permanent adhesion, flexibility and softness.

Moreover, CHEMIGUM LATEX is easily handled and compounded. No complicated equipment or processing problems are involved in giving you an unusual product of wide application.

Write today for details and the latest *Tech Book Bulletins* on CHEMIGUM LATEX in nonwoven fabric and many other uses. Address: Goodyear, Chemical Division, Dept. W-9433, Akron 16, Ohio.

CHEMICAL
GOODYEAR
DIVISION

COATINGS
DEPARTMENT

Chemigum, Plioflex, Pliolite, Plio-Tuf, Pliovic –T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

CHEMIGUM • PLIOFLEX • PLIOLITE • PLIO-TUF • PLIOVIC • WING-CHEMICALS

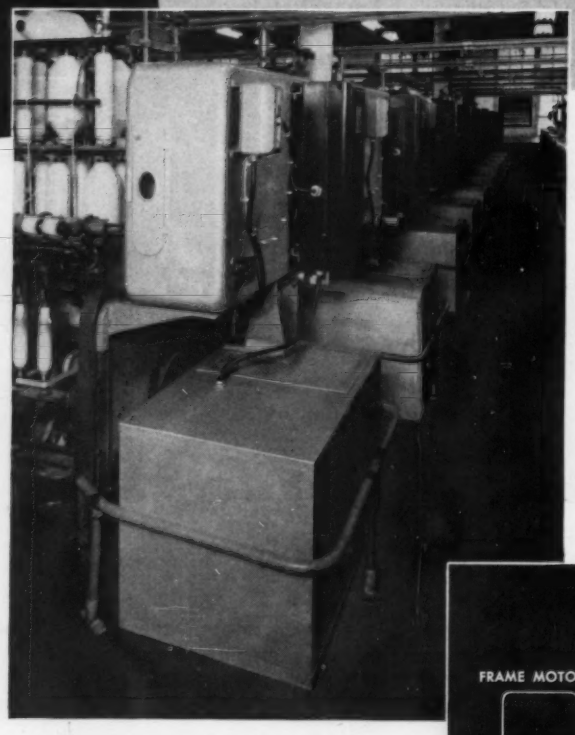
High Polymer Resins, Rubbers, Latices and Related Chemicals for the Process Industries

For more data, write this page number on Reader-Service card. →

Does three jobs at one time!

NEW! Bahnson Central Heat Removal System

PAT. PENDING



1. Takes Out Unwanted Heat From 2 Sources

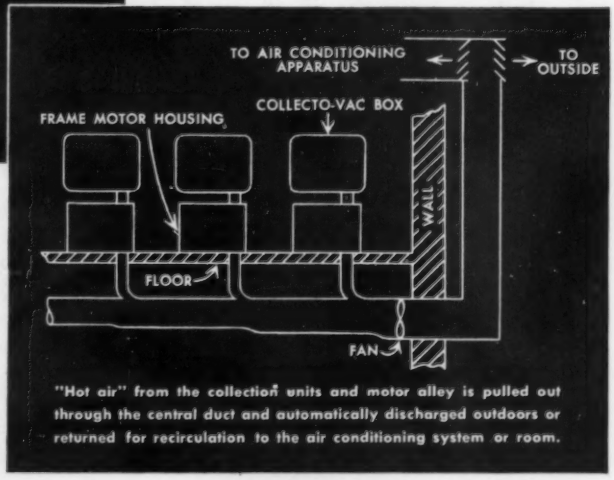
Vacuum collection heat and frame motor heat removed simultaneously.

2. Provides More Uniform Air Conditions

Concentrated motor alley heat eliminated with maximum cooling.

3. Cools Entire Room When Air Exhausted Outdoors

Room heat load economically lowered by removing heat from collection unit plus frame motor to outside.



"Hot air" from the collection units and motor alley is pulled out through the central duct and automatically discharged outdoors or returned for recirculation to the air conditioning system or room.

Already selected (photo above) and preferred by a number of the nation's top textile mills because it does three important jobs simultaneously, the Bahnson Central Heat Removal System helps establish and maintain better room air conditions.

The Bahnson Central Heat Removal System is designed as a flexible unit installation to avoid disrupting production due to single fan failure; the frame motor enclosure is constructed with a "quick latch" connection facilitating access for maintenance. The Bahnson Central Heat Removal System is adaptable to existing Bahnson Collecto-Vac Systems and can be installed separately.

Bahnson P. M.* Plan

Complete *Package Modernization Plan with new equipment for end collection, cleaning, creels, air conditioning. Offers one-source responsibility and service plus dollar savings.

Bahnson
COMPANY
WINSTON-SALEM, N. C.

For more information:

Write for full data or let our representative call for a detailed explanation and recommendation.

AIR CONDITIONING / VACUUM COLLECTION / CLEANING / CREELS

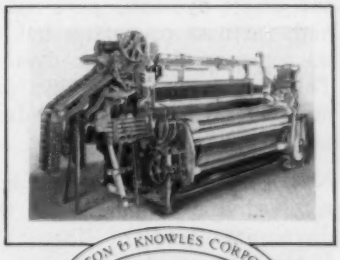
When the Duke *Steps Out* of traditional trousers

. . . can you follow the new fashion-leader?

When a young nobleman recently appeared at a formal wedding *without* striped trousers . . . but *with* plaid trousers . . . the world of fashion blinked, looked again — and followed suit!

That's how suddenly a new fad can start. And also, just how suddenly a single-purpose weaveroom can be left at the post, unable to follow the new path to plush profits.

But a C&K **Multi-Purpose** or Select-A-Pic weaveroom can actually convert *overnight* to any pattern or construction . . . even from plain to fancy fabrics and back again . . . and to any combination of colors. So you're all ready at all times to follow the winds of fashion, however they may blow. And in addition, M-P or Select-A-Pic Looms will give you higher production of better fabric . . . as well as increased work-assignments and lower maintenance.



CROMPTON & KNOWLES *Corporation*

WORCESTER 1, MASSACHUSETTS, U. S. A.

CHARLOTTE, N. C. • PHILADELPHIA, PA. • ALLENTOWN, PA.

CROMPTON & KNOWLES CORPORATION C&K WORCESTER, MASS U.S.A.

Crompton & Knowles Jacquard & Supply Co., Pawtucket, R. I. • Crompton & Knowles of Canada Ltd., Montreal, Quebec

For more data, write this page number on Reader-Service card. →

Out of Chemstrand research comes a great new advance in filament nylon dyeing:

THE CHEMNYLE* PROCESS

For the first time in nylon history, nylon filament yarn can now be dyed to give both colorfastness and uniformity!

The dyeability of filament nylon yarn has always posed a dilemma. Under conventional dyeing methods, disperse dyes gave nylon good uniformity of dyeing but at the sacrifice of colorfastness. Conversely, the use of many acid and direct dyestuffs gave nylon high fastness properties but at the expense of uniform dyeing. This "either or" dyeability put heavy brakes on the expanding uses of nylon yarn.

Now Chemstrand research has resolved this dilemma with the development of the Chemnyle Process...*a new dyeing technique that gives continuous filament nylon excellent color uniformity and colorfastness simultaneously . . . a combination previously unobtainable.* Even when washed at temperatures of 160 degrees F. and higher, fabrics dyed by the Chemnyle Process show outstanding resistance to color loss . . . while improvements in lightfastness are also very substantial.

With the Chemnyle Process, nylon at last achieves a dyeability worthy of its other famed properties of strength, long wear, easy washing, fast drying. With the Chemnyle Process a broad range of end products can now be successfully dyed in fast color...thus opening up great new opportunities for the textile industry.

The Chemnyle Process is readily adaptable to all forms of existing dyeing equipment, is applicable to piece, stock and package dyeing and costs about the same as conventional dyeing processes.

For full information regarding licensing procedures, The Chemstrand Corporation invites mills and dyehouses to contact The Chemstrand Nylon Sales Dept. at 350 Fifth Ave., N. Y. 1.

CHEMSTRAND® NYLON

*Patent applied for.

THE CHEMSTRAND CORPORATION • GENERAL SALES OFFICES: 350 FIFTH AVE., NEW YORK 1 • DISTRICT SALES OFFICES: 3½ Overwood Road, Akron, Ohio; 4 Pearl Street, Dedham, Mass.; 222 South Church Street, Charlotte, N. C. • PLANTS: CHEMSTRAND® NYLON—Pensacola, Fla.; ACRILAN® ACRYLIC FIBER—Decatur, Ala.

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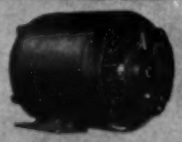
for your textile applications

TEXTILE MOTORS—1½ to 15 H.P. Specially engineered with wide open air passages... built-in high capacity fan expels clogging lint while forcing cooling air across motor surface. Send for Bulletin 14-193P1.

SELECTIVE SPEED DRIVES—1 to 150 H.P. For warpers, slashers; for range drives in finishing plants. Operate from A.C.; respond to changes in operations and automatically adjust speed to fit the job. Broad range of stepless speed control; respond to wide variety of remote control devices. Send for Bulletin 11-1P1.



DRIP PROOF, FULLY PROTECTED FRACTIONAL H.P.—1/20 to ¾ H.P. AC, single or polyphase. Send for Bulletin 1-1P1.

GEAR MOTORS—1 to 125 H.P. (parallel); ⅛ to 3 H.P. (right angle), A.C. or D.C.; speed to fit your need. Send for Bulletin.

RIGID BASE, OPEN TYPE, PROTECTED—1 to 400 H.P.; A.C., single or polyphase; for use in finishing, bleaching and dyeing plants, and print works. Send for Bulletin 6-1P1.

Century **MOTORS ARE**

Performance-Rated©

to specific mill equipment requirements

pickers • roving frames • spinning and twisting frames • cone winders • warp mercerizers .. agitators • dryers • mixers compressors • pumps • and other equipment

EACH MOTOR IS RIGHT FOR ITS JOB BECAUSE . . .

Century Performance-Rating enables you to select precisely the right motor size, speed, frame, and torque characteristics to fit each specific application requirement.

Mail coupon now for free Bulletins . . . or call or write your nearby Century District Sales Office or Authorized Distributor.

To CENTURY ELECTRIC COMPANY
1806 Pine Street, St. Louis 3, Mo.
Please send me the following bulletins:

(fill in numbers here).....

.....

Name..... *Title*.....

Company.....

Address.....

City..... *Zone*..... *State*.....

CE-82

Performance-Rated©
MOTORS
1/20 to 400 H. P.

CENTURY ELECTRIC COMPANY

1806 Pine Street • St. Louis 3, Missouri • *Offices and Stock Points in Principal Cities*

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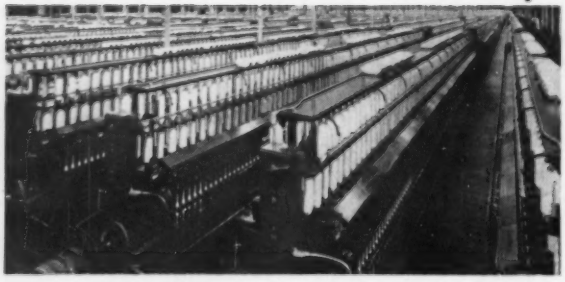
no substitutes wanted...

SKF Roller Bearing Spindles are Re-Elected to Serve

In popularity among mill executives, **SKF** anti-friction spindles are far out ahead of any pretenders to the job they serve so well. Consistently for thirty years (since their introduction) they have been re-specified on successive spinning and twisting frame installations.

NO SUBSTITUTES CAN DO THE JOB. The popularity of these Roller Bearing Spindles isn't idle preference but simply the result of well calculated, business-like thinking about the superior yarn produced with a minimum cost per pound.



SKF Roller Bearing Spindles reduce power consumption (15 to 25% less on motors, belts, tapes, etc.) and the extremely low friction co-efficient of the spindle bearing means maintenance-free operation. The rugged, large capacity roller bearing bolster economically carries the large packages now desired by textile mills – increasing production substantially. Higher product quality results because the low spindle vibrations produce less ends-down and the uniform speed assures more uniform yarn.

ACCEPT NO SUBSTITUTES – because there *are* no substitutes. Always insist upon **SKF** Roller Bearing Spindles.

7717

SKF®

TEXTILE BEARING SPECIALTIES

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.
–manufacturers of **SKF** *and* HESS-BRIGHT® *bearings.*

SUBSIDIARY
TYSON BEARING CORPORATION, MASSILLON, OHIO
–manufacturers of Tyson *tapered roller bearings.*

AMERICA'S LEADING SYNTHETIC DETERGENT

6 × 3 = 18

6 − 2 = 4

Simple Arithmetic made

$\begin{array}{r} 2 \\ +2 \\ \hline 4 \end{array}$

3 × 4 = 12

Nacconol SL*

the largest selling liquid detergent in the textile industry

Many economy-minded mills are cutting handling time and costs with Nacconol SL. Being a liquid concentrate, it is easy and clean to use, requires no dissolving. Simply add water to secure the desired working concentration.

And remember this extra, you get more cleaning-power-per-dollar with Nacconol SL (based on an active ingredient basis compared with most dry products). Why not join the mills that are cutting production costs with Nacconol SL?

Other popular forms of Nacconol for wet processing include Nacconol DB, Nacconol DBX, Nacconol NR and Nacconol NRSF. Send for your sample and see for yourself how effective Nacconol SL really is.

* Alkyl Aryl Sulfonate

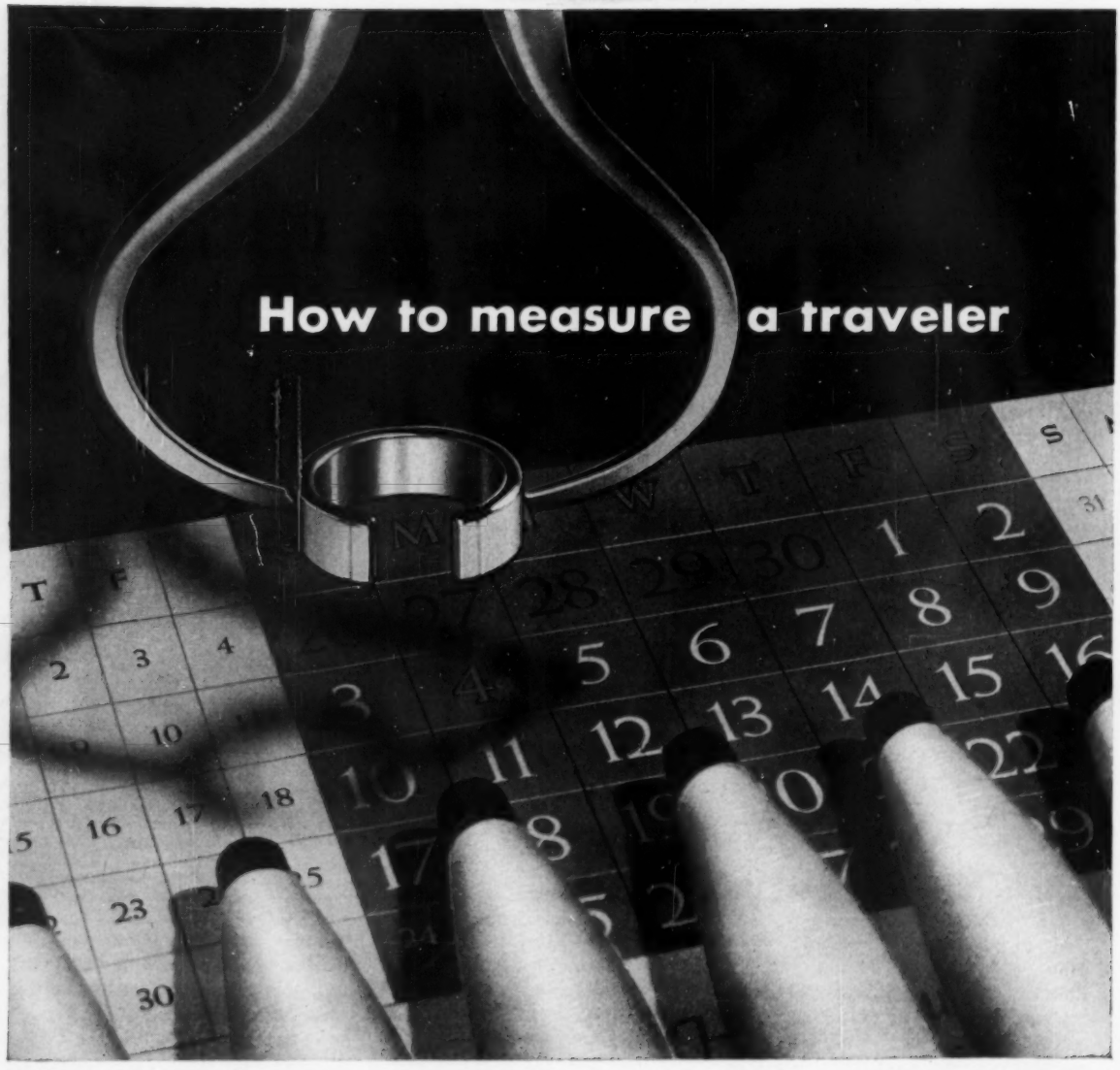
Nacconol

NATIONAL ANILINE DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET, NEW YORK 6, N.Y. • HAnover 2-7300

Samples promptly sent on request.



Measure a traveler by days of trouble-free service, and by pounds of first-quality yarn delivered. Travelers vary widely by this test, even though they *look* alike and meet dimensional specifications.

Under *any* conditions, you can be sure of maximum production per traveler when you rely on Victor experience and quality control.

That's the reason why Victor Travelers are chosen for over 12,000,000 spindles. Mill men everywhere find that Victor quality pays off, consistently, in longer traveler life . . . with fewer ends down . . . at higher spinning and twisting speeds.

A Victor Service Engineer will help you select Travelers that measure up to maximum production on any yarn you are running. Write, wire, or phone for prompt service.

VICTOR RING TRAVELER COMPANY

PROVIDENCE, R. I. . . 20 Mathewson Street . . . . . Tel. DExter 1-0737

GASTONIA, N. C. . . . 914-916 East Franklin Ave. . . Tel. UNiversity 5-0891

VICTOR Ring Travelers

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PIN DRAFTER® SYSTEM boosts production

on better quality tufted carpet yarns

CHATHAM MANUFACTURING COMPANY, Elkin, North Carolina, installed Warner & Swasey Pin Drafters to process worsted yarns. They soon found that their Pin Drafters' extreme versatility *also* permitted improved processing of superior tufted carpet yarns.

Now, working 3 full shifts, 6 days a week, they produce up to 40,000 lbs. a week—over 2,000,000 lbs. per year for the past two years!

Besides this high production, the Pin Drafter system has provided Chatham these additional advantages:

- **Pin Drafters handle longer staple lengths, permitting lowering twists and bulkier yarns—better cover.**
- **Better parallelization of fibers.**
- **Improved blending of all fibers. (They have had good results on hard-to-blend Heather Flannel—3% black with 97% white.)**
- **A wider range of sliver weights can be produced, without changing trumpets.**
- **Pin Drafters require less floor space for same poundage.**

One official stated, "For versatility and quality, regardless of denier, the type fiber, or fiber length, Pin Drafters provide the most satisfactory operation."

This story again shows the versatility of the Pin Drafter system and its adaptability to *many different* mill applications. For facts on how Pin Drafters can cut costs, speed production, and improve quality in your mill, call in your Warner & Swasey Field Representative.

® Reg. U. S. Pat. Off.

WARNER & SWASEY
TEXTILE MACHINERY DIVISION

SALES OFFICES

Main Office and Factory: 5701 Carnegie Avenue, Cleveland 3, Ohio
61 Rivulet St., North Uxbridge, Mass. • Suburban Square Bldg., Ardmore (Philadelphia), Pa.
121 11th Street, N. E., Atlanta 3, Ga. • 624 Pecan Avenue, Charlotte 1, N. C.

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS...WITH A WARNER & SWASEY

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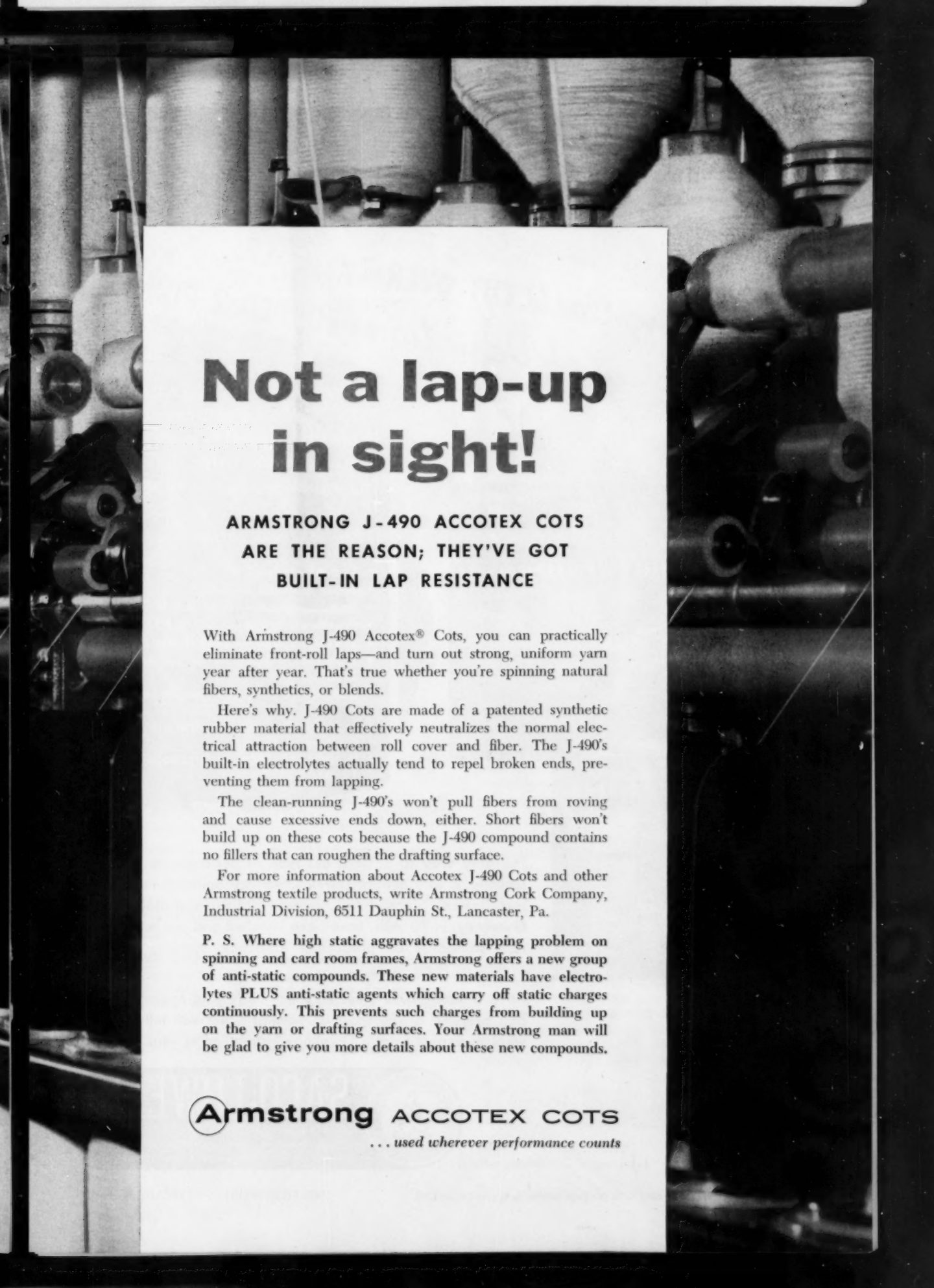


Not a lap-up in sight!

ARMSTRONG J-490 ACCOTEX COTS ARE THE REASON; THEY'VE GOT BUILT-IN LAP RESISTANCE

With Armstrong J-490 Accotex® Cots, you can practically eliminate front-roll laps—and turn out strong, uniform yarn year after year. That's true whether you're spinning natural fibers, synthetics, or blends.

Here's why. J-490 Cots are made of a patented synthetic rubber material that effectively neutralizes the normal electrical attraction between roll cover and fiber. The J-490's built-in electrolytes actually tend to repel broken ends, preventing them from lapping.

The clean-running J-490's won't pull fibers from roving and cause excessive ends down, either. Short fibers won't build up on these cots because the J-490 compound contains no fillers that can roughen the drafting surface.

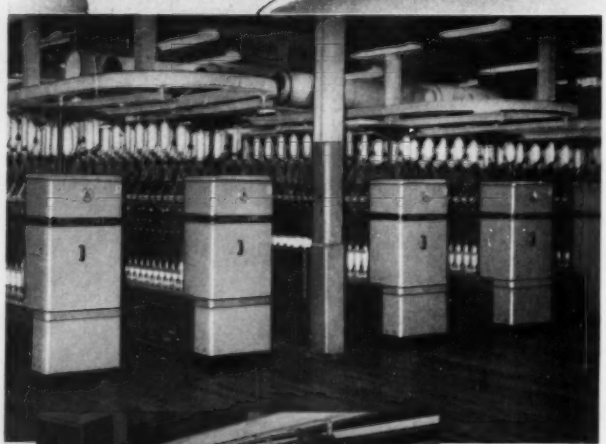
For more information about Accotex J-490 Cots and other Armstrong textile products, write Armstrong Cork Company, Industrial Division, 6511 Dauphin St., Lancaster, Pa.

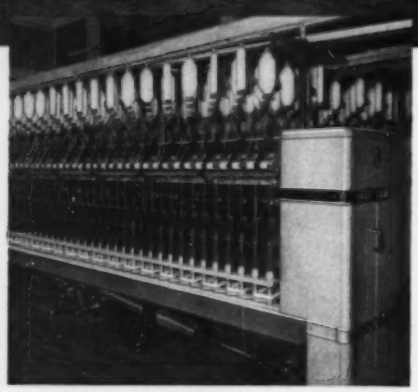
P. S. Where high static aggravates the lapping problem on spinning and card room frames, Armstrong offers a new group of anti-static compounds. These new materials have electrolytes PLUS anti-static agents which carry off static charges continuously. This prevents such charges from building up on the yarn or drafting surfaces. Your Armstrong man will be glad to give you more details about these new compounds.

Armstrong ACCOTEX COTS

. . . used wherever performance counts

Spinning Room Efficiency INCREASED 22%
Winding Costs CUT OVER 2¢ per LB.
Coefficient of Variation DROPPED 2 POINTS





THIS GWALTNEY INSTALLATION of 7200 spindles produced these profit-making results in a knitting mill renowned for super quality.*

HERE ARE THE FACTS:

- Size of yarn — 28's super quality knitting.
- Size of rings — 3".
- Twist multiple — 3.00.
- Spindle speed — 8200 R.P.M.
- Front roll speed — 147 R.P.M.
- Traveler speed — 6440 ft. per min.
- Spinners assignment — 30 sides, 3600 spindles.
- Ends down per 1000 spindle hours — 13.2.
- Increase in breaking strength per skein — 16.89%.
- Weight of yarn on package — 12 oz.

The **only way** to achieve this type of performance consistently is with a Saco-Lowell Gwaltney Spinning Frame installation. Since 1953, over 450,000 spindles of Gwaltney, in 70 mills, have been installed and are setting new standards of production efficiency, quality, and profits in these mills.

Have a Saco-Lowell Sales Engineer study your operations and prepare a "Forecast of Savings" that will tell you what to expect from a Gwaltney Installation in your mill.

*Name on request.

SACO-LOWELL
60 BATTERYMARCH STREET, BOSTON 10, MASS.
Shops at BIDDEFORD and SACO, MAINE, and SANFORD, N. C.
SALES OFFICES: CHARLOTTE • GREENSBORO • GREENVILLE • ATLANTA

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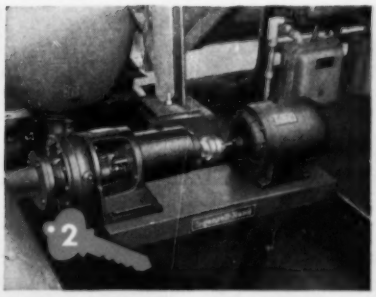

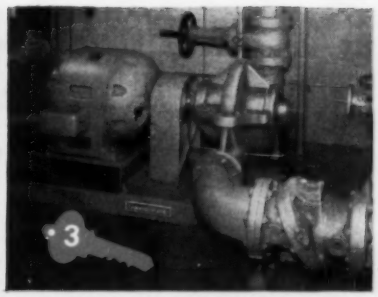

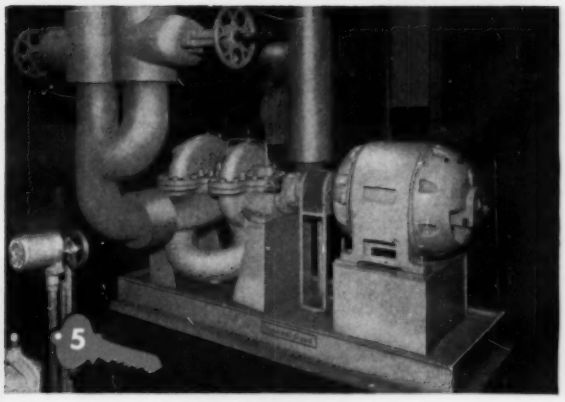

Five Keys to LONG-RANGE ECONOMY on your general-purpose pumping jobs

The Ingersoll-Rand pumps shown feature several different designs and types. Yet they all have one thing in common—the ability to give you low-cost performance on your general purpose pumping jobs.

When you install an I-R pump, you can count on continued efficient operation—with a minimum of time out for attention and maintenance.

In addition to the pumps shown, Ingersoll-Rand manufactures a complete line of single and multi-stage pumps of horizontal and vertical design for every job application. See your I-R representative for full information on the pump which best meets your needs.

1. **MOTORPUMPS:** Free from base plates, couplings and alignment problems, I-R Motorpumps can be mounted in any position that gives the simplest, most economical installation. They are especially designed for continuous full load service, with a wide range of capacities from 5 to 1800 gpm and heads up to 600 ft. Available in single, two and four-stage units.

2. **CRADLE-MOUNTED PUMPS:** Built with separate pump and drive units, coupled and mounted on a sturdy base plate, I-R Cradle-Mounted Pumps come in one and two stages, with capacities from 5 to 2800 gpm and heads up to 525 ft. They can be equipped with any drive, and provide easier accessibility, over-sized bearings and greater accessibility.

3. **SINGLE-STAGE HORIZONTALLY-SPLIT PUMPS,** with double mechanical shaft seals: For capacities from 275 to 2400 gpm and heads to 350 ft., maintenance-free DMV and DHV pumps are provided with double mechanical shaft-seals and permanently lubricated sealed bearings. Troublesome stuffing box maintenance is eliminated, and bearings do not require any attention or lubrication throughout the life of the pump.

4. **SINGLE-STAGE HORIZONTALLY-SPLIT PUMPS,** conventional design: The Class AFV unit illustrated is typical of the standard I-R line of single-stage horizontally-split centrifugals, with capacities ranging from 25 to 50,000 gpm, and heads from 20 to 350 ft. Stuffing boxes are extra deep, and equipped with water seal cages. Any type of drive may be used.

5. **TWO-STAGE HORIZONTALLY-SPLIT PUMPS:** I-R two-stage Class GT pumps are available in capacities up to 2200 gpm for discharge heads up to 1050 ft. Outstanding performance is assured by such features as extra deep stuffing boxes, renewable shaft sleeves and wearing rings, carefully designed liquid passages and volutes, and efficient closed-type impellers.

Ingersoll-Rand

10-455 **11 Broadway, New York 4, N. Y.**

PUMPS • ROCK DRILLS • GAS & DIESEL ENGINES
COMPRESSORS • CONDENSERS • AIR & ELECTRIC TOOLS

For more data, write this page number on Reader-Service card. →

How the **AVISCO** Integrity Program helps you profit from higher rayon quality standards

Virtually everyone in the textile business agrees that long-term quality controls are better for business than short-term sales expediency. Today most consumers must have *confidence* in quality before they will buy.

In the rayon and acetate industry this confidence-building job was undertaken a year ago by the American Viscose Corporation. To provide an incentive for the production of serviceable fabrics containing Avisco fibers, the Avisco Integrity Program was set up.

Results have been gratifying. Already 56 important converters and finishers have become licensees. Millions of dollars' worth of national magazine and TV advertising has been telling the public what the Avisco Integrity Tag means to them—how it protects and guides them. Retailers have tied in enthusiastically. *Everyone* profits!

We bear the full cost of both testing and national advertising. The rest is up to you. To qualify for a tag, fabrics must meet these tests:

Breaking and bursting strength
Yarn slippage
Colorfastness . . . Laundering 160° F.
Crocking
Sunlight 40 hrs.
Atmospheric fading
} A.S.A.-L22

Chlorine retention . . . AATCC Test 69-52, not more than 25% loss in strength. No appreciable browning.

Shrinkage in laundering (2%) . . . Federal Specs. CCC-T-191a (Cotton Method).

Breaking and bursting strength
Yarn slippage
Colorfastness . . . Laundering 105° F.
Perspiration
Crocking
Sunlight 10 hrs.
(40 hrs. sptswear.)
Atmospheric fading
} A.S.A.-L22

Shrinkage—(2%) . . . Coml. Standards CS 59-44. Textiles Testing & Reporting (Dept. of Commerce).

Breaking and bursting strength
Yarn slippage
DIMENSIONAL RESTORABILITY
Colorfastness . . . Cleaning dry and wet
Perspiration
Crocking
Sunlight
Atmospheric fading
} A.S.A.-L22

(All foregoing tests apply to woven fabrics. Similar tests for knitted fabrics.)

For further details, call LA 4-7200 or write American Viscose Corp., 350 Fifth Avenue, New York 1, N. Y. We will send you a copy of the requirements and Confirming Order Form. You return completed form with fabric sample of each color in each dye lot. We test these in our labs, and if they qualify we send a licensee agreement certificate to you, and garment tags to your cutters. Cutters affix the tags, retailers display them and consumers *buy*.

← For more data, write this page number on Reader-Service card.

Production problems got you spinning in circles?

Protect your output the sure way—with

PUROSPIN and PUROTWIST

spindle and twister ring lubes

You pay no premium for added production protection when you use Pure Oil's spindle and twister ring oils . . . PUROSPIN and PUROTWIST. These are the very special lubricants that smooth out production snarls by minimizing maintenance at the key points on all your frames.

Count on PUROSPIN to insure clean bright spindles because of its high resistance to oxidation. All cast iron and steel frame parts are kept rust-free. In addition, all sleeve and rolling-type bearings are constantly lubricated because of PUROSPIN's high film strength and adhesive quality. And you run less risk of yarn stain because we use a special foam-suppressor additive.

PUROTWIST extends the same overall protection to twister rings and travelers. Superior fluidity at low temperatures insures low power demands during start-up, eliminating the need of a special start-up oil.

Discover what these two fine products can do for your production without cost or obligation. Just call your nearest Pure Oil mill lubrication specialist. He'll tell you all about PUROSPIN and PUROTWIST as well as the other top quality PURE products made especially for your mill lube problems.

Be sure with Pure

Sales offices located in more than 500 cities in PURE'S marketing area

For more data, write this page number on Reader-Service card. →

News about

B.F.Goodrich Chemical *raw materials*

Nylon covers for aircraft wings are coated with a plastisol based on Geon paste resin.

for wear, tear, and weather-resistant fabric coatings . . .

GEON RESIN 121

PLASTISOL coatings made from Geon resin 121, with their many outstanding qualities, are developing new markets and upgrading existing products for manufacturers and converters—while they save them money!

Plastisol coatings based on Geon 121 resin are easy to use—readily applied with existing equipment—by spread coating, dipping and spraying. What's more, these coatings need no milling or grinding.

Whatever the application method, these remarkable Geon coating features stand out:

Better physical properties—high resistance to aging, gas, oil, abrasion, and many chemicals.

No cracking—strength and flexibility are retained even at freezing temperatures.

Better uniformity—viscosity, thickness and penetration are easily and closely controlled.

Heavier coatings—up to 25 mils in a single pass.

No hazards—coatings are flame resistant, applied without volatile solvents.

Greater eye appeal—unlimited in color range: embossing and printed designs readily applied.

Wider range of applications—any fabric, any weave, any thickness; for luggage, upholstery, tablecovers, drapes, wall-coverings, awnings, protective coverings, tapes, fire blankets, handbags or footwear.

You gain both functional and decorative improvements for your products from the use of Geon paste resins. Complete information is available from Dept. DV-7, B. F. Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

B.F.Goodrich Chemical Company
a division of The B.F.Goodrich Company

B.F.Goodrich GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors

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"Cannons are booming!"

Cannon's distinctive sheet display pays off in brand impact at point-of-sale. Find out about fashion-styled corrugated floor and counter merchandisers for your product.

HINDE & DAUCH

Subsidiary of West Virginia Pulp and Paper Company

AUTHORITY ON PACKAGING • SANDUSKY, OHIO
13 FACTORIES • 42 SALES OFFICES

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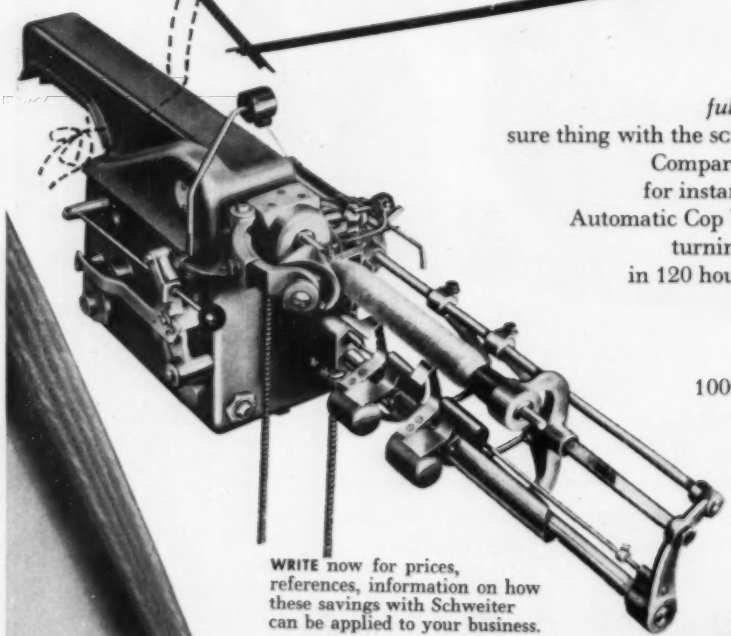
Schweiter

winding coarse yarns?

write your own ticket with America's finest FULLY AUTOMATIC COP WINDER

WINDS UP TO 18 INCHES LENGTH AND 2 INCHES DIAMETER



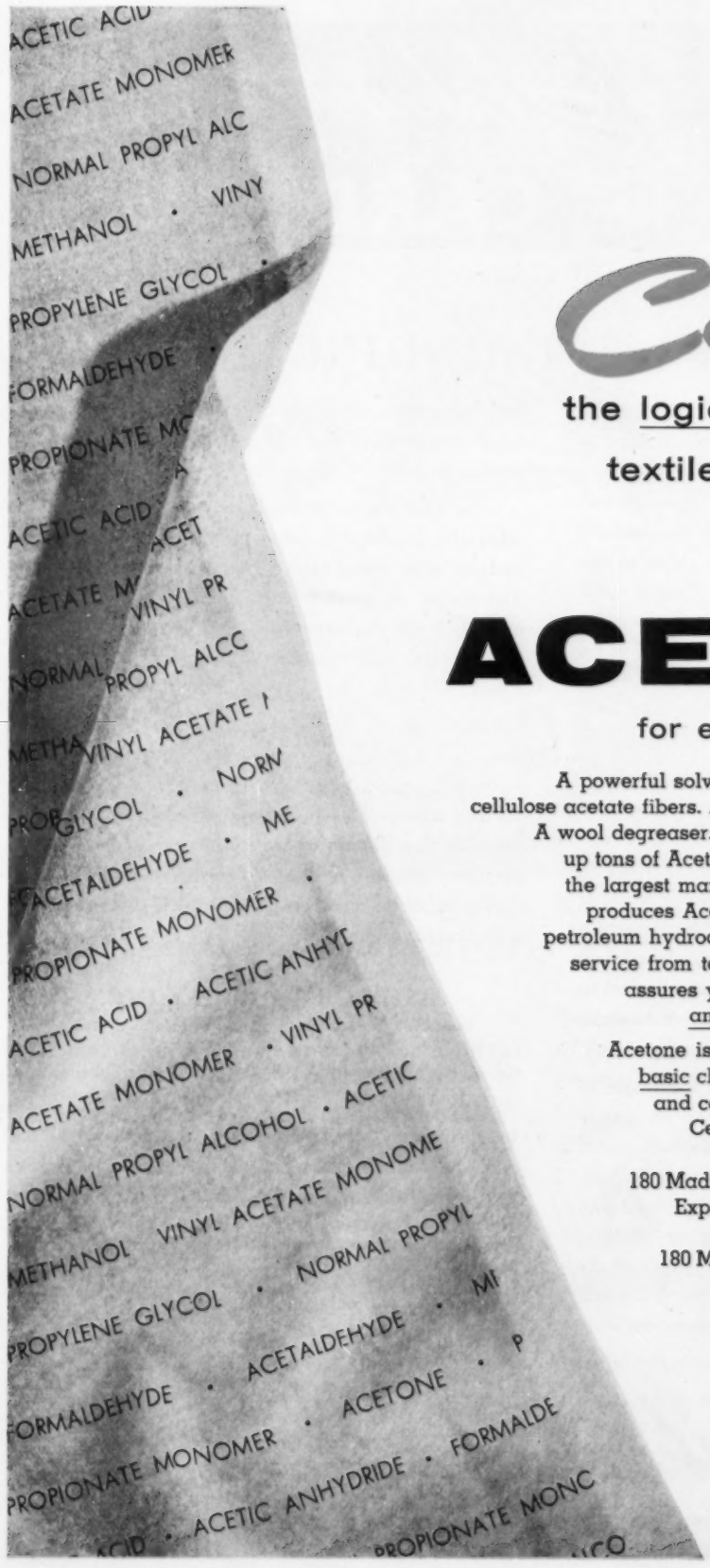
It's the finest winder for the coarsest textile fibres . . . and it's *fully automatic!* Yes, healthy savings are a sure thing with the SCHWEITER HOLLOW COP WINDER TYPE MT. Compare the production in one American plant, for instance . . . where four 15-spindle MT Fully Automatic Cop Winders were recently installed and are turning out 53,000 pounds of cop wound yarn in 120 hours with 6 people . . . compared to 47,000 pounds with 14 people operating conventional cop winders. And with these savings: $6.90 saved per 1000 pounds! You'll agree, that's more than just a narrow margin of savings!

WRITE now for prices, references, information on how these savings with Schweiter can be applied to your business.

Schweiter

SCHWEITER LTD.
HORGEN (ZURICH) SWITZERLAND

Agents for U.S.A. and Canada **WHITIN MACHINE WORKS**
WHITINSVILLE, MASSACHUSETTS



Celanese

the logical source for textile chemicals

ACETONE

for example . . .

A powerful solvent basic to the manufacture of cellulose acetate fibers. A constituent of fabric coatings. A wool degreaser. These textile applications soak up tons of Acetone each year. Celanese, one of the largest manufacturers of textile chemicals, produces Acetone by controlled oxidation of petroleum hydrocarbons. Our complete shipping service from terminals and distribution points assures you of prompt Acetone delivery anywhere . . . anytime you need it.

Acetone is just one of the growing list of basic chemicals produced by Celanese and consumed by the textile industry.

Celanese Corporation of America,
Chemical Division, Dept. 571-K,
180 Madison Avenue, New York 16, N. Y.
Export Sales: Amcel Company, Inc.
and Pan Amcel Company, Inc.,
180 Madison Ave., New York 16, N. Y.

Celanese®

Celanese CHEMICALS

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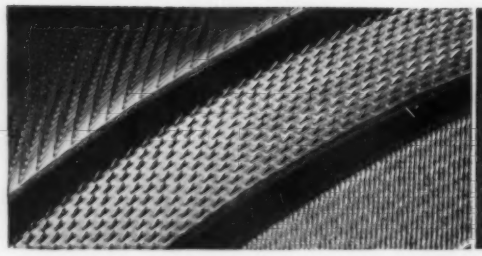

Ashworth Tips ON CARDING

No. 35 in a Series

SURFACE GRINDING

In spite of all that the manufacturer of the card can do to prevent it, distortion of cylindrical castings — such as those that become cylinders, doffers and lickerins on cotton cards — does occur in some instances, and to a greater or lesser degree, over the years that the card is in operation. The utmost precaution is taken to age these castings properly, and in the machining of them painstaking care is exercised to assure that they will be circumferentially true. There are times, however, when certain castings stubbornly refuse to be "at rest"; and in many instances the mill is unaware that they have "worked" and their perimeter is no longer a true circle.

In Tip No. 31, published in July, 1956, mention was made of mills adopting the grinding of bare doffers as a standard practice prior to the application of new card clothing. It is equally important that cylinders be checked before they are reclothed to determine whether internal stresses have made surface changes, either in contour or concentricity, and surface grinding is required. Serious jams, incidentally, have been known to effect such a change in a cylinder's surface as to make grinding imperative.

Although card clothing installed on a cylinder or doffer that is out-of-round can be ground ultimately to a true circumference, it may be only through excessive grinding that this is accomplished; with the possible result that the wire becomes fatigued and susceptible to early "shedding". If "shedding" or "shelling out" does not ensue, more of the usable length of the teeth is ground off than would be the case if the roll was not in that condition. In extreme cases, the wire has been pushed under the foundation on the high side of an out-of-round cylinder, presenting an appearance similar to that of a raised fillet.

An effective method whereby an out-of-round or otherwise distorted cylinder or doffer may be readily detected is by means of checking with a dial indicator. The extent to which a correction, if any, should be made is at once apparent and the progress of the surface grinding can be measured from time to time as it advances.

Mills intent upon maintaining their cards in the best possible condition, in getting the utmost in quality from their card clothing and, quite possibly, adding to its life, as well, will find it well worth while to check the surface condition of the cylinder and doffer whenever new clothing is about to be installed and to surface grind these members of the card if this procedure is indicated.

ASHWORTH BROS., INC.

American Card Clothing Co. (Woolen Division)

Fall River*†‡ Worcester‡ Philadelphia*†‡ Atlanta†‡
Greenville*†‡ Charlotte†‡ Dallas†‡ (Textile Supply Co.)
E. G. Paules, Representative — Los Angeles, Calif.
*Factory †Repair Shop ‡Distributing Point
3 Factories • 6 Repair Shops • 7 Distributing Points

PRODUCTS AND SERVICES

Clothing for Cotton, Wool, Worsted, Silk, Synthetic Fibre and Asbestos cards and for All Types of Napping Machinery. Brusher Clothing and Card Clothing for Special Purposes. Lickerin Wire and Garnet Wire. Sole Distributors for Platt's Metallic Wire. Lickerins and Topflats Reclothed.

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Ashworth PIONEERS IN CARD CLOTHING

3 FACTORIES • • • 6 REPAIR SHOPS • • • 7 DISTRIBUTING POINTS

When you vote on New Mill Machinery

...do you vote a straight AMERICAN ticket?

There's no real substitute for American-made production machinery in any branch of American industry. Designed and built to take the strains and stresses of the world's toughest demands for speed and endurance . . . with a minimum of down-time and maintenance . . . American machines are today more than ever the best buy in every field from textiles to metal-working.

Yes, American production machines are the backbone of America's competitive economy . . . *and why settle for anything else?*

VEEDER-ROOT INC.

"The Name that Counts"

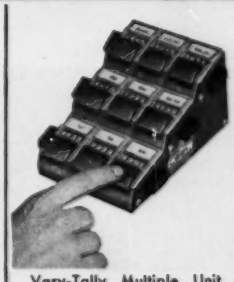
Hartford, Conn. • Greenville, S. C. • Chicago
New York • Los Angeles • San Francisco • Montreal
Offices and Agents in Principal Cities

. . . and here's why it pays to make sure that All New Machines you buy are equipped with NEW VEEDER-ROOT COUNTERS . . .

Modern Veeder-Root Counters . . . for looms, frames, knitting machines and all types of textile mill equipment . . . are built with unmatched Veeder-Root know-how and quality to give accurate facts-and-figures through years of trouble-free service. Count on Veeder-Root for closest Control of production and uniformity. Write Veeder-Root for all your counter needs.

2-3-4 Convertible Counters for looms, frames, knitting machines, etc.

Loom Cut Meters for controlling uniform cuts of cloth.



Vary-Tally Multiple Unit Reset Counters for inventory, inspection, and 1,001 other hand-counting jobs.

Double-Wheel Linear Counter for indicating lengths in feet, yards, etc.

Wellman Combing Company, Johnsonville, South Carolina

This plant, the first wool processing plant in the Southeast, and owned by Nichols and Company, Inc. of Boston, the largest wool treatment concern in the country, recently went into production. It has a capacity of 20 million pounds of grease wool per year, and is planned for enlargement to four times that capacity.

DANIEL CONSTRUCTION CO., BUILDERS

LOCKWOOD GREENE PROJECTS IN . . . . . WOOL PROCESSING

Lockwood Greene's work, originating in 1832 with the design of textile mills, amounting to a present total of around one billion dollars in value, now includes the first two wool processing plants in the Southeast, here shown, for the world's two largest wool processing firms.

Santee River Wool Combing Company, Jamestown, S. C.

This plant, the second wool processing plant in the South, has an initial area of 150,000 square feet for the first unit, processing 20 million pounds of wool per year, and is planned for an ultimate expansion to four units. This is the Southern Unit of the Branch River Wool Combing Company of Woonsocket, Rhode Island, owned by Amedee Prouvost of Roubaix, France, one of the two largest wool processing firms in the world.

DANIEL CONSTRUCTION CO., BUILDERS

BOSTON 16, MASS. 316 Stuart Street
NEW YORK 17, N. Y. 41 East 42nd Street
SPARTANBURG, S. C. Montgomery Building
OVER A CENTURY OF INDUSTRIAL PLANT EXPERIENCE
BROCHURE AVAILABLE UPON REQUEST

Continuous management services from site selection to plant completion.
LOCKWOOD GREENE
ARCHITECTS – ENGINEERS

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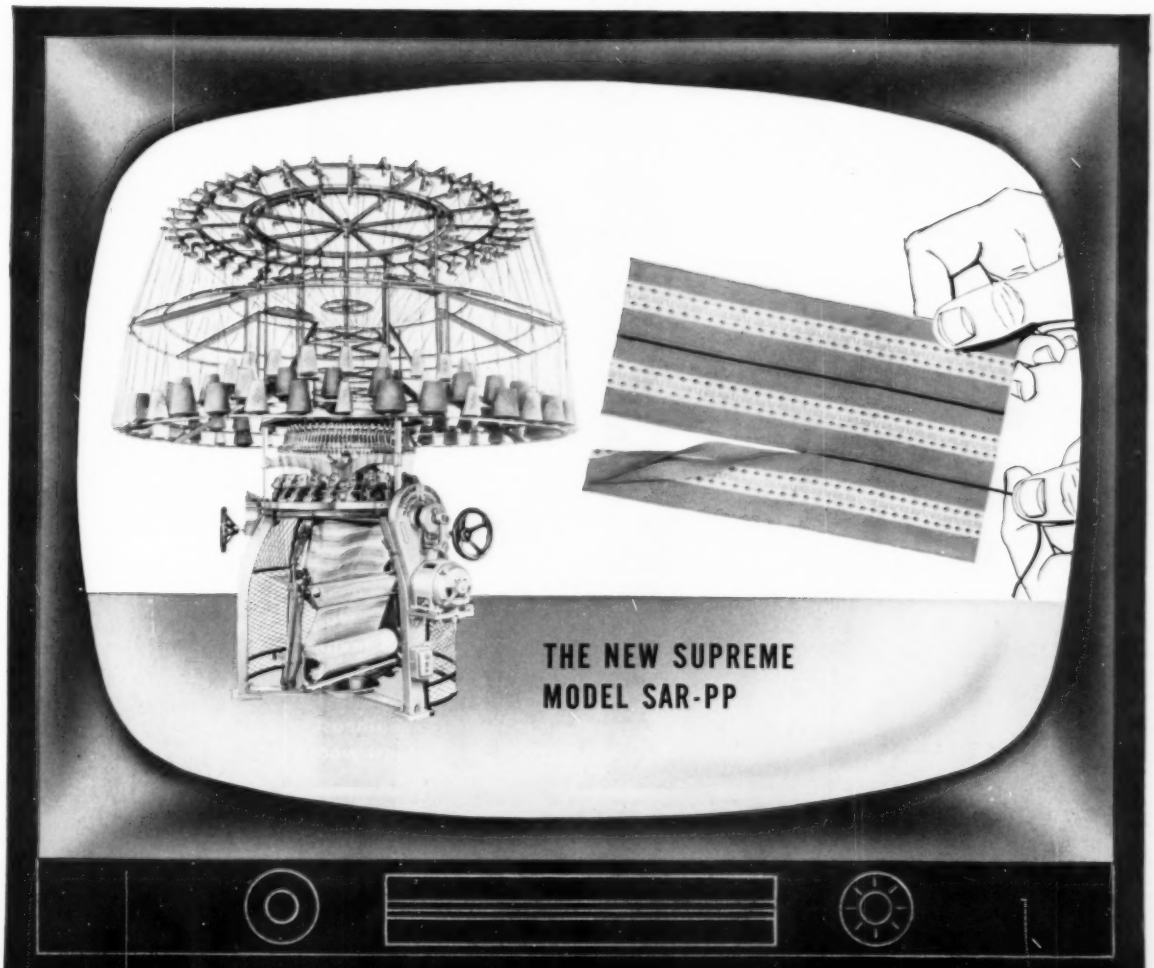


SUPREME Presents A Knitting "SPECTACULAR"

AN ENTIRELY NEW—MULTIPLE FEED—HIGH SPEED—VERSATILE AUTOMATIC STRIPE AND PATTERN RIB KNITTER

● Opens new fields for fancy rib fabrics by virtue of its ability to knit a tremendous variety of high-styled rib cloth at unprecedented production rates —*to 28 yards per hour.*

● Knits automatic variable striped rib—with or without patterned inserts placed where desired—on 1x1 or swiss rib—produces all over patterns—textured effects such as "blister stitches"—fabric with or without draw thread separations (easily removed for uniform selvedge) spaced as desired —scalloped edge fabric—cardigan—a myriad of rib fabrics with new designs and style quality.

● Standard 30" diameter available through 14 needles per inch—contains 24 feeds—with three-position pattern wheels on each cylinder feed—individually and automatically controlled four-color striping boxes (which remain in knitting action at all times) on alternate feeds*—automatic knit, tuck and welt control on all cylinder and dial feeds.

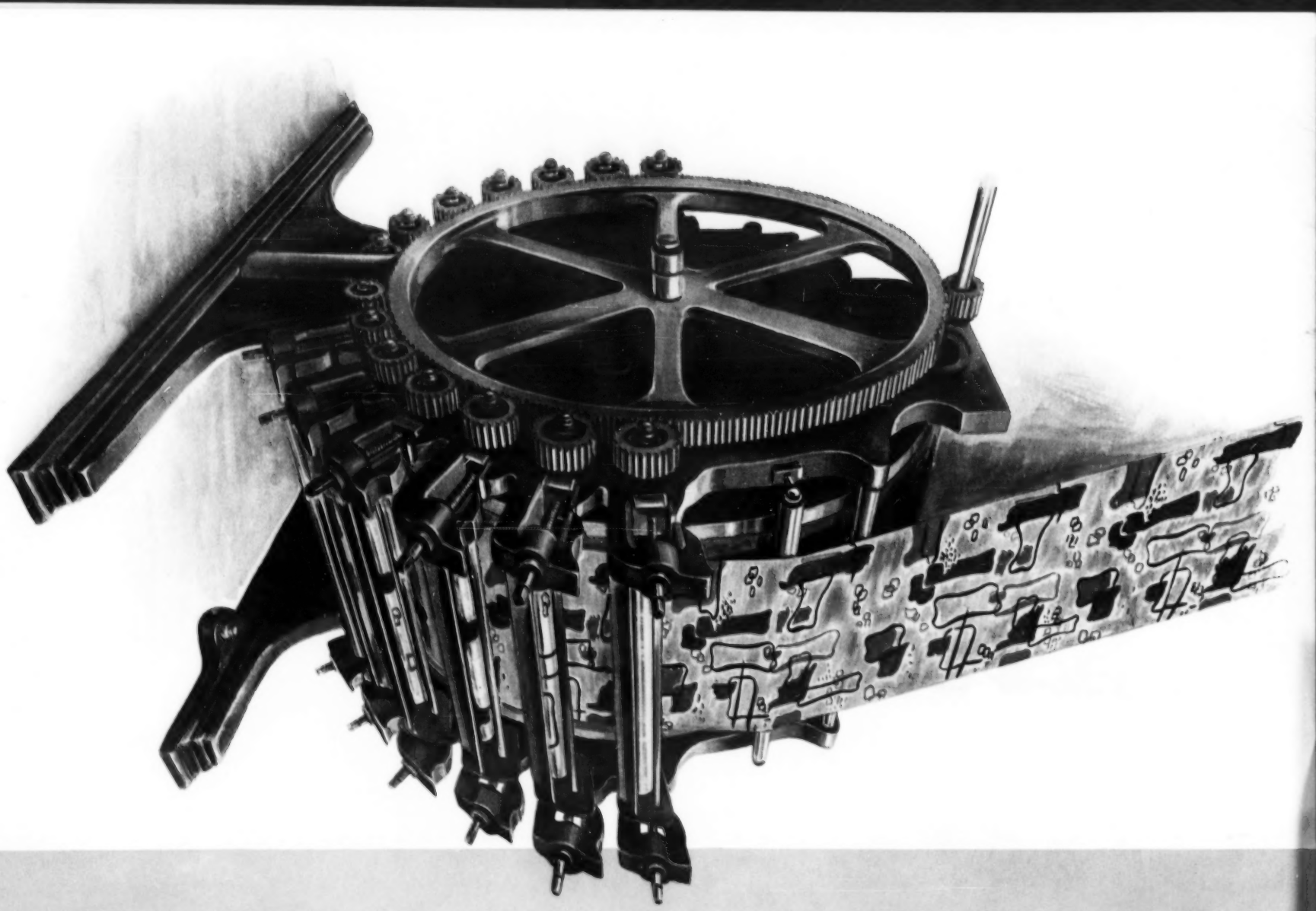
● Incorporates the most advanced engineering design for maximum efficiency—New Seam Knitting Device—(Pat. Applied For) which permits knitting of seam on all feeds without slightest difficulty—stationary "tiered" yarn stand (Pat.) plus all mill proven features of Supreme's SAAF—World's most popular jersey striper.

For further details or a demonstration of the New SAR-PP, contact Supreme today.

SUPREME
KNITTING MACHINE CO., INC.
94-02 104th STREET, OZONE PARK 16, N. Y.
Southern Representative and Showroom:
The Malluck Co., 914 East 4th Street, Charlotte, N. C.

*Available on all twenty-four feeds upon request

SK-179



Here's the NEW Du Pont savagraph process for highest quality printing with "VANTASOL"* vat dyes

Prints . . . Reduces . . . Develops at High Speed . . . Gives Higher Quality Print Than Present Vat Printing Methods

Du Pont research has developed a new printing process that gives you a great opportunity to increase the efficiency of your printing operations. The new Savagraph process, using the newly developed "VANTASOL" Dyes, also gives you a higher quality print than present vat printing methods.

These advantages, combined with high speed printing and steaming, all point to the start of the greatest advance in vat printing in 30 years.

Here's How The Savagraph Process Works:

Specially prepared Du Pont "VANTASOL" Dyes are compounded into unique water-in-oil emulsions. Printing is done on conventional equipment at top machine speed. Prints are developed by padding with caustic soda and hydrosulfite followed by steaming in a simple, inexpensive flash ager. Steaming times will vary from ten seconds to one minute, depending on weight of fabric and pattern. After being oxidized, only a mild soaping is needed. The Savagraph process using "VANTASOL" Vat Dyes gives the *highest degree of fastness* to all color destroying influences—washing, bleaches, sunlight, salt water.

Here's How Your Quality Improves:

Printed fabrics have a dyed effect in the blotch areas—with the finest overall coverage and smoothness.

You get exceptional sharpness in reproducing delicate patterns in the engraved design.

You get increased crock fastness over vats printed by present methods.

The Savagraph process and "VANTASOL" Dyes can be used to print all types of cellulosic fabrics.

Here's How You Can Get Further Information:

Like all new processes, the Savagraph process will have to be worked out at your plant, with your equipment. Du Pont Technical Representatives will be glad to consult with you and arrange for a demonstration. So get in touch with your Du Pont Dyes and Chemicals representative or your nearest district office. E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Department, Dyes and Chemicals Division, Wilmington 98, Delaware.

*Trademark

Du Pont Dyes

DU PONT

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

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271 MADISON AVENUE
NEW YORK 16, N. Y.

Telephone: Murray Hill 3-8650

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For Manufacturers and Merchants

L. F. Dommerich & Co. California Corp.

819 Santee St., Los Angeles 14 • TRinity 7171

Inquiries as to our services solicited

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BUSINESS ESTABLISHED 1840

Inside and Outside . . . entirely new

NEW Elliott C-W type N Motor PERMANENTLY SEALED Against Dust, Moisture, Corrosive Fumes

The rugged "Sealedpower" cast frame Elliott motor shown above is the modern version of the design pioneered in this country by Crocker-Wheeler. An external fan, made of sparkless material, and surrounded by a cowl, blows air along the frame for highest cooling efficiency. An internal fan provides continuous air circulation within the enclosure. All openings in the frame are tightly sealed, providing complete protection to windings and working parts.

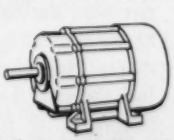
Once applied only in locations where extremely destructive atmospheric conditions prevail, totally-enclosed motors are today rapidly gaining acceptance for all types of applications. Users find that the total over-all cost—first cost plus maintenance—is less than that of open or semi-enclosed motors.

Ask your Elliott representative for details, or write for the new type N motor bulletin. Address Elliott Company, Crocker-Wheeler Division, Jeannette, Pennsylvania.

OTHER C-W TYPE N MOTOR ENCLOSURES

Totally-enclosed non-ventilated

Dripproof Protected



Totally-enclosed, fan-cooled Frames 256 U and smaller

ELLIOTT Company
CROCKER-WHEELER DIVISION

We will be glad to send a copy of this new booklet describing the complete line of Elliott C-W type N motors. Please write on company letterhead.

W6-6

FACTORS

For Manufacturers and Merchants

L. F. Dommerich & Co. California Corp.

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Inquiries as to our services solicited

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BUSINESS ESTABLISHED 1840

New flexible apron... offer 8 important

All-Purpose Dayco AP 664 Apron improves yarn control
—even on new high draft frames

Available for single and double apron systems

2840-326U

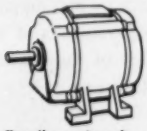
NEW Elliott C-W type N Motor PERMANENTLY SEALED Against Dust, Moisture, Corrosive Fumes

The rugged "Sealedpower" cast frame Elliott motor shown above is the modern version of the design pioneered in this country by Crocker-Wheeler. An external fan, made of sparkless material, and surrounded by a cowl, blows air along the frame for highest cooling efficiency. An internal fan provides continuous air circulation within the enclosure. All openings in the frame are tightly sealed, providing complete protection to windings and working parts.

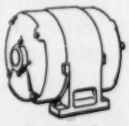
Once applied only in locations where extremely destructive atmospheric conditions prevail, totally-enclosed motors are today rapidly gaining acceptance for all types of applications. Users find that the total over-all cost—first cost plus maintenance—is less than that of open or semi-enclosed motors.

Ask your Elliott representative for details, or write for the new type N motor bulletin. Address Elliott Company, Crocker-Wheeler Division, Jeannette, Pennsylvania.

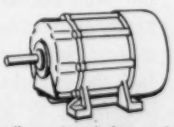
OTHER C-W TYPE N MOTOR ENCLOSURES



Totally-enclosed non-ventilated



Dripproof Protected



Totally-enclosed, fan-cooled Frames 256 U and smaller

ELLIOTT Company
CROCKER-WHEELER DIVISION

We will be glad to send a copy of this new booklet describing the complete line of Elliott C-W type N motors. Please write on company letterhead.

W6-6

new lap resistant cot... drafting advantages

All Weather Dayco EW 661 Cot draws uniformly, despite extreme "dog day" heat and humidity.

New flexible apron... offer 8 important

All-Purpose Dayco AP 664 Apron improves yarn control —even on new high draft frames

Available for single and double apron systems

These important features mean more uniform yarn, trouble-free operation

1. **Greater flexibility eliminates drag around nose bar**
2. **Reduced co-efficient of friction—chatter-proof**
3. **Lint-free—won't hold or stick to fibers**
4. **Highly oil resistant**

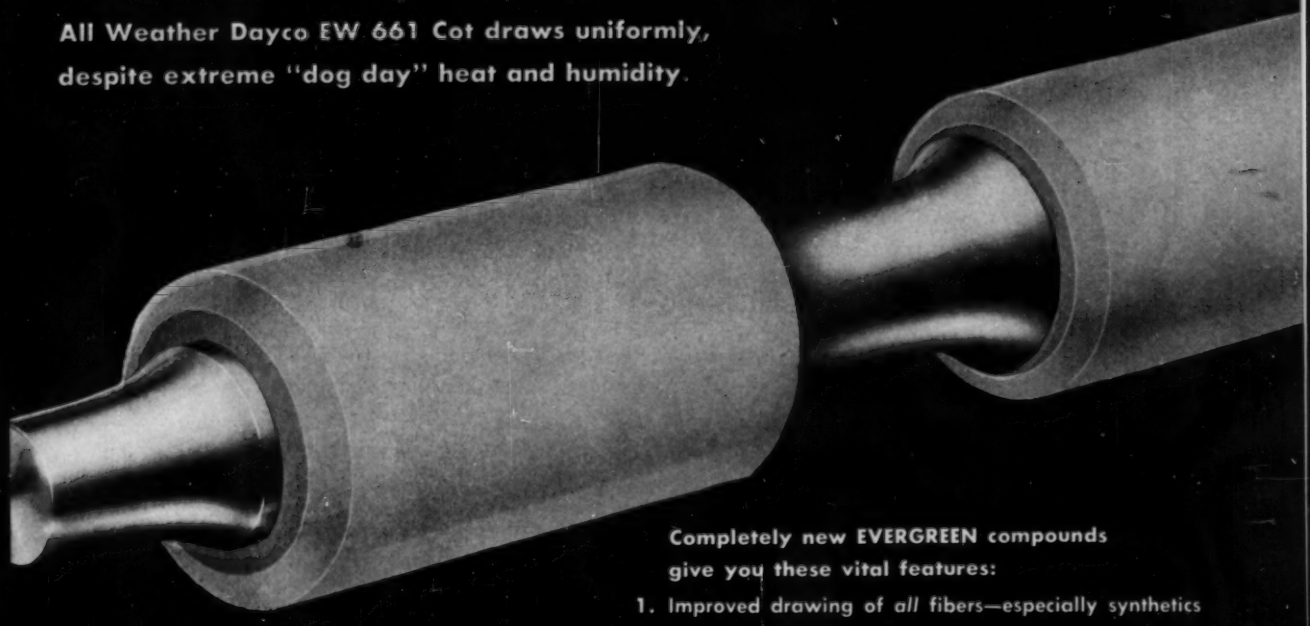
Test the easy flexibility of the new Dayco AP 664 Apron with your own hands! See the clean pink color of the smooth, semi-gloss inner surface. Reduced co-efficient of friction minimizes chatter around the nose bar on low, high and super draft frames.

New light blue compounds in the drafting surface take just the right finish for all fibers—synthetic and natural. Special ingredients will not adhere to fibers after shutdowns, nor hold lint to coat the drafting surface. This superior apron is unaffected by extremes of temperature and humidity. No known oils affect the efficiency of the drawing face the remarkable new Dayco AP 664 Apron.

new lap resistant cot...

drafting advantages

All Weather Dayco EW 661 Cot draws uniformly, despite extreme "dog day" heat and humidity.



Completely new EVERGREEN compounds give you these vital features:

1. Improved drawing of *all* fibers—especially synthetics
2. Stays dry—won't sweat
3. Never becomes sticky
4. Won't adhere to fibers during shutdowns

Amazing surface action of newly developed EVERGREEN compounds assure you practically lap-free spinning every day of the year. This NEW Dayco Cot has proved itself lap resistant in *any* weather in actual mill tests. It never sweats nor becomes sticky, so the yarn can't slip nor adhere to the surface.

Even on mid-summer "dog days" with heat and humidity zooming upward, the EVERGREEN compounds in the new Dayco EW 661 Cot run cool, draw yarn smoothly, evenly, virtually *without lap-ups!*

Your Dayco Representative will be in to see you soon. He'll be glad to arrange for you to run a test frame of the all new Dayco AP 664 Aprons and the new all-weather Dayco EW 661 Cots as well as give you additional facts on these new, improved Dayco products. The Dayton Rubber Company, Textile Div., 401 S. C. National Bank Bldg., Greenville, S. C.

Dayton Rubber

DAYCO AND THOROBRED TEXTILE PRODUCTS FOR BETTER SPINNING AND WEAVING

The technician... among metallic yarns

LUREX® MM

the special-purpose metallic yarn made with Mylar polyester film*

Lurex MM provides smooth-running strength in production . . . with great pliability, a very high yield per pound and complete elimination of stop motions.

Heat resistance of Lurex MM in dyeing and finishing is unique. Permits fabrics to be dyed at the boil . . . withstands extreme heats in the heat setting operation . . . under proper controls can be piece mercerized and pre-shrunk.

Put-ups of Lurex MM are tailored to your special needs. Unsupported Lurex MM is supplied on disposable spools. Supported Lurex MM is available on disposable spools, cones and tubes.

Lurex MM offers specific advantages for increasing sales. With greater brilliance, strength, softness, temperature and abrasion resistance, Lurex MM opens the road to new end use possibilities.

Lurex MM has remarkable versatility in many applications . . . with profitable performance records in wools, cottons, laces, embroidery and long-wearing rugs and carpets, always with the customer "plus" of easy care.

Lurex MM is the patented metallic yarn. Its technical leadership is established under U. S. Patent No. 2714569.

Consumer interest in fabrics with Lurex MM is growing rapidly. Spurred by coordinated merchandising, national advertising, publicity and promotion—Lurex MM is the selling factor in more and more successful fabrics.

This tag tells you it's Lurex, non-tarnishing metallic yarn made only by the Yarn Division of

The Dobeckmun Company, Cleveland 1, Ohio
New York: 350 Fifth Avenue • London • Amsterdam

Boston • Philadelphia • Charlotte, N. C. • Chicago • Detroit
Manufacturing Affiliates in Canada:
William B. Stewart & Sons Ltd., Toronto and Montreal

*Mylar is a registered duPont trademark

VICKERS® Variable Speed HYDRAULIC TRANSMISSIONS

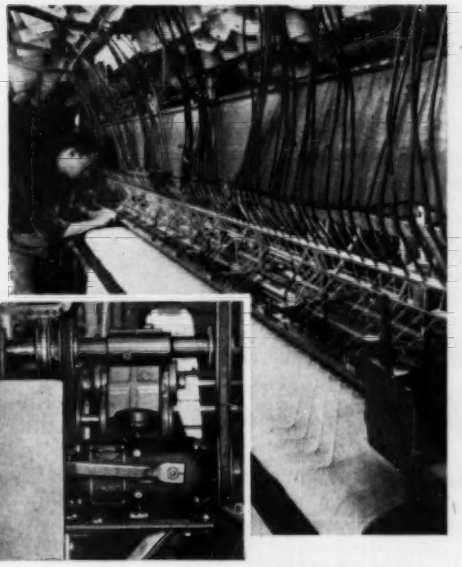
Their Rapid and Accurate Response to Input Signals

Means:

Handwheel Type Manual Control 3/4 hp

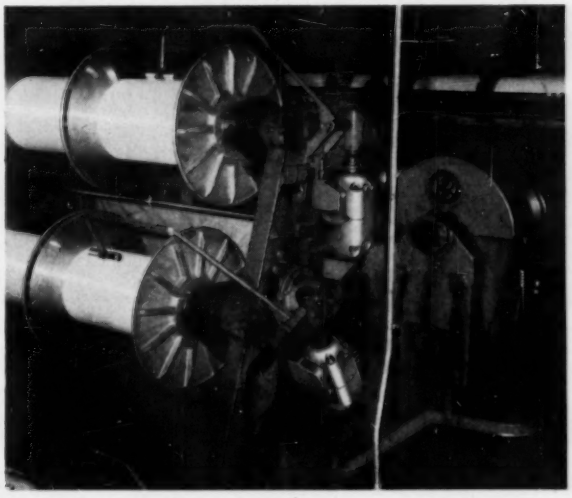
Servo Type Remote Control 3/4 hp

1 BETTER and FASTER TUFTING



Cabin Crafts, Inc., Dalton, Georgia, makers of tufted textiles, uses Model TR3 Vickers Hydraulic Transmissions to *accurately control the varying lateral position* of the cloth fed at a fixed rate to the fixed position needles that do the tufting. Automatically, the continuous and accurate speed change enables them to manufacture varying patterns in tufting not practical by conventional methods of speed control. New patterns and old patterns alike can be made better and faster because of the extremely sensitive response of Vickers Hydraulic Transmissions to input signals.

2 REDUCED THREAD BREAKAGE



At the E. Richard Meinig Co., Reading, Penna., Model TR3 Vickers Hydraulic Transmissions are used to drive beam rolls of cotton or nylon filament into knitting machines. *Tension of the thread is accurately controlled* due to the infinitely variable speed and the rapid, precise response of the transmissions to input signals. Thread breakage is reduced to a minimum, resulting in increased production, better quality and pattern control. Also, it is possible to run elastic materials on a standard machine with this modification. Maintenance has been negligible since the installation of these TR3 Transmissions in 1948.

WHAT CAN THEY DO FOR YOU

There are numerous other applications in the textile industry where the precise control of variable speed or tension provided by Vickers Variable Speed Hydraulic Transmissions means a better product at a reduced cost. Additional important advantages are automatic overload protection that prevents damage to the machine and the virtual absence of maintenance and downtime. The TR3 is available with a Servo (for use with V dancer rolls, cams, pattern wheels, etc.) or manual control as shown at upper right. *Write for Bulletin 47-408.*

VICKERS INCORPORATED

DIVISION OF SPERRY RAND CORPORATION

ADMINISTRATIVE and ENGINEERING CENTER

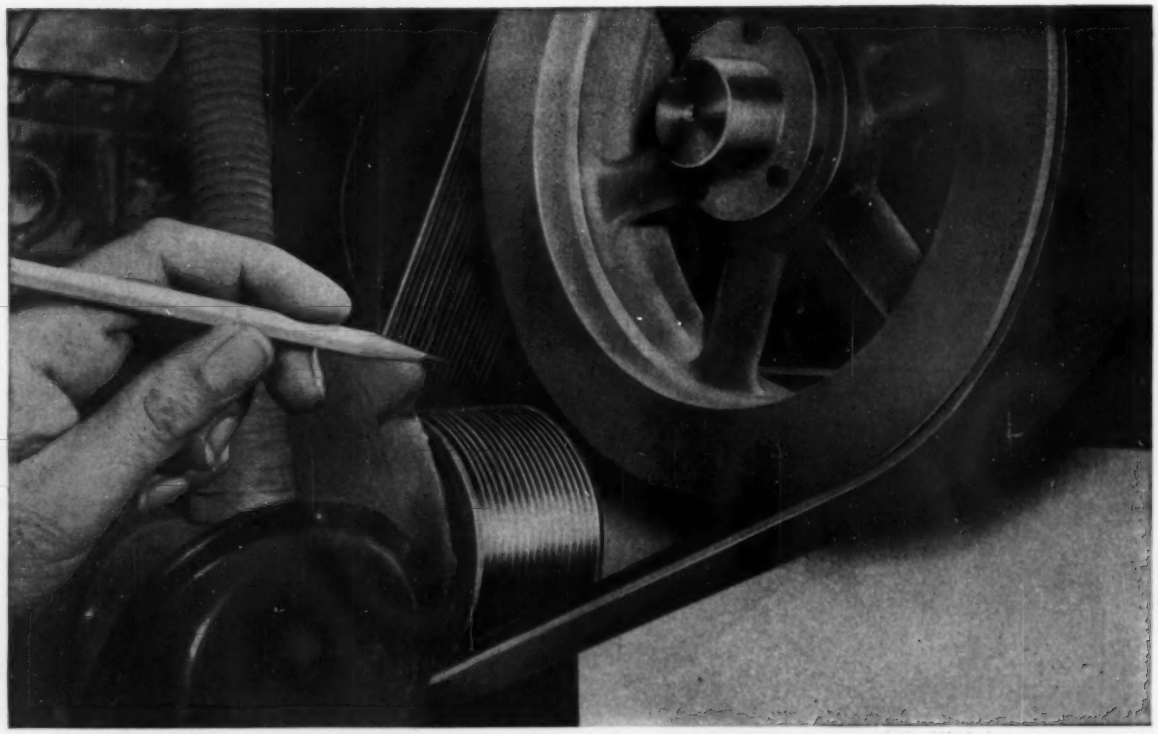
Department 1588 • Detroit 32, Michigan

Application Engineering Offices: ATLANTA • CHICAGO • CINCINNATI CLEVELAND • DETROIT • HOUSTON • LOS ANGELES AREA (El Segundo) MINNEAPOLIS • NEW YORK AREA (Summit, N. J.) • PHILADELPHIA AREA (Media) • PITTSBURGH AREA (Mt. Lebanon) • PORTLAND, ORE ROCHESTER • ROCKFORD • SAN FRANCISCO AREA (Berkeley) • SEATTLE ST. LOUIS • TULSA • WASHINGTON • WORCESTER

IN CANADA: Vickers-Sperry of Canada, Ltd., Toronto

7395

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921



This Space Saving Drive Solves Difficult Design Problems . . New R/M *Poly-V® Drive*

Could greater power capacity in less drive space mean an improvement in your equipment drive design? It can be done with R/M Patented Poly-V* Drive . . . R/M's totally new concept in heavy-duty power transmission! Actual installations have proved that this belt drive can deliver up to 50% *more* power in the same space as ordinary multiple-belt drives . . . or *equal* power in as little as 2/3 the space!

The unusual space-saving advantages of R/M Poly-V Drive are the result of over 5 years development by R/M engineers. Employing a single, endless parallel V-ribbed belt running on sheaves designed to mate precisely with the belt ribs, gives Poly-V Drive the strength and simplicity of flat belts *plus* the high V-groove grip of V-belts. It means you get twice the tractive surface of multiple V-belts in the same drive width . . . twice the power capacity . . . "More Use per Dollar".

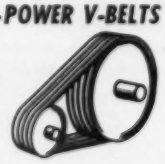
OTHER IMPORTANT ADVANTAGES INCLUDE:

- Single Unit Design — Eliminates Belt Matching Problems
- More Uniform Tension — Prolongs Belt and Sheave Life
- Two Belt Cross Sections — Meet Every Heavy Duty Power Transmission Requirement
- Oil Proof, Non Spark, Heat Resistant

Investigate R/M Poly-V Drive for the improved design of both new and existing equipment. R/M engineers will gladly work with you on power transmission drive problems. Contact an R/M representative.

CONDOR V-BELTS • R/M SUPER-POWER V-BELTS

Write for Bulletin #6868 on the complete line of Condor V-Belts for regular service on conventional V-belt drives. Also write for Bulletin #6628 on R/M Super-Power V-Belts with 40% more Horsepower capacity where needed.



*Poly-V is a registered Raybestos-Manhattan Trademark

RM 627

MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

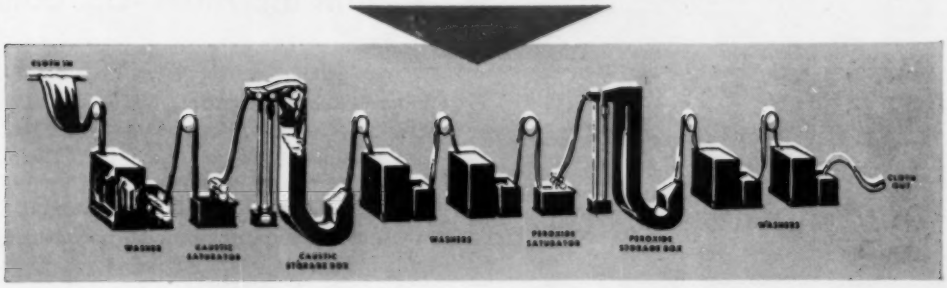
RAYBESTOS-MANHATTAN, INC.

Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings • Asbestos Textiles • Packings • Engineered Plastic, and Sintered Metal Products • Laundry Pads and Covers • Bowling Balls

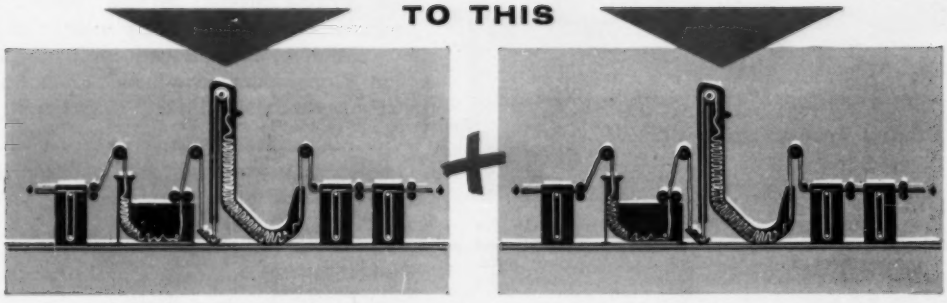
← For more data, write this page number on Reader-Service card.

New "SOLO-MATIC" Bleaching Program gives you doubled production

WHEN YOU CONVERT THIS



TO THIS



. . . or the SAME PRODUCTION with HALF THE EQUIPMENT

Whether you plan a new bleachery . . . plan increased production with present equipment . . . have a kier, jig or two-pass, single-stage system . . . the "Solo-Matic" Bleaching Program affords unparalleled advantages.

Du Pont's unique "Solo-Matic" Program comprises:

1. A single-stage continuous bleaching system that equals the efficiency of multi-stage systems . . . yet requires 50% less floor space and equipment . . . and reduces costs up to 20%!

2. New simplified J-Box that operates at higher temperatures for more effective bleaching . . . reduces wear, tear and distortion on the goods being processed.

3. Du Pont technical service . . . includes a confidential survey of your plant by qualified bleaching consultants. Impartial recommendations are made, based on their findings, with suggestions for adapting the "Solo-Matic" Program to your specific needs.

Du Pont's "Executive Summary" tells you exactly how the "Solo-Matic" Program can step up your production . . . cut costs. Fill out the coupon below and your Du Pont representative will be glad to present this important "Summary" to you.

DU PONT
PEROXIDES

"ALBONE" 50
50% hydrogen peroxide

"ALBONE" 35
35% hydrogen peroxide

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

E. I. du Pont de Nemours & Co. (Inc.),
Electrochemicals Department
Wilmington 98, Delaware

Yes, I would like to learn more about the "Solo-Matic" Program. Please have your representative call with full information.

Name_____ Title_____

Firm_____

Address_____

City_____ Zone_____ State_____

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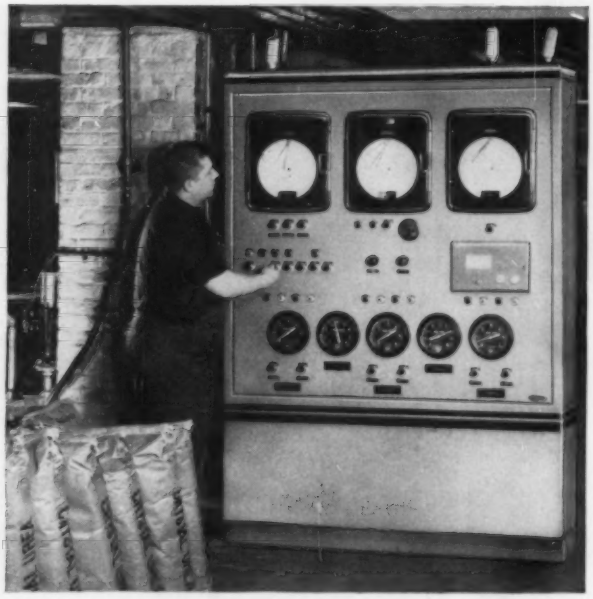
WAUMBEC

Cuts Urea-Formaldehyde Costs 50%!



Foxboro Cabinet for control of U.F. formulation at Waumbec Dyeing & Finishing Co., Inc., contains (top row, left to right): liquid level controller for reactor; dual pH recorder-controller for sodium bicarbonate and acetic acid dilutions; dual temperature controller for reactor jacket and mix temperatures.

. . . with Foxboro Automatic Make-Up Control

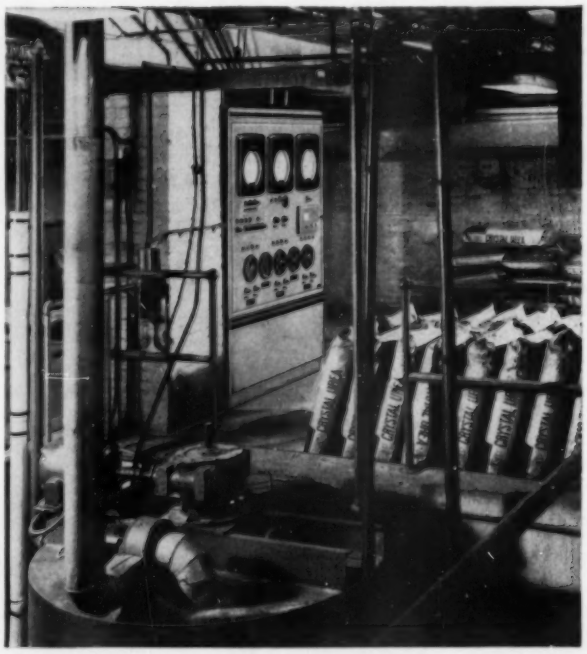
By manufacturing its own urea-formaldehyde under Foxboro Control, Waumbec Dyeing & Finishing Co., Inc., Manchester, N. H., has cut the cost of this important finish by 50%. The advanced, automatic system enables the mill to buy make-up chemicals in bulk, at substantial savings. In addition, formulation can be precisely controlled, assuring a continuous supply of uniformly high-quality U.F. to the padders.

The savings effected by this Foxboro Control System made possible a quick write-off of its cost. Also, Waumbec officials cite the invaluable protection it affords personnel by eliminating practically all hazardous manual operations.

Why not realize similar economies, efficiency, and safety on processes in *your* mill? For information, write **The Foxboro Company, 8411 Neponset Ave., Foxboro, Mass.**

CRITICAL STEPS ARE ALL AUTOMATIC

All control for the reaction is centralized in a single, five-foot Foxboro Cabinet in the make-up room. Formaldehyde filling, pH measurement, the heating and cooling cycle, reactor emptying, and washing, are performed automatically. The operator merely pushes "start buttons" and adds dry chemicals. Signal lights show every stage of the process.



Right: Reactor and formaldehyde storage tanks are located in a pit. The processed U.F. is piped to the finishing room storage tanks.

FOXBORO
REG. U. S. PAT. OFF.

TEXTILE PROCESS CONTROL SYSTEMS

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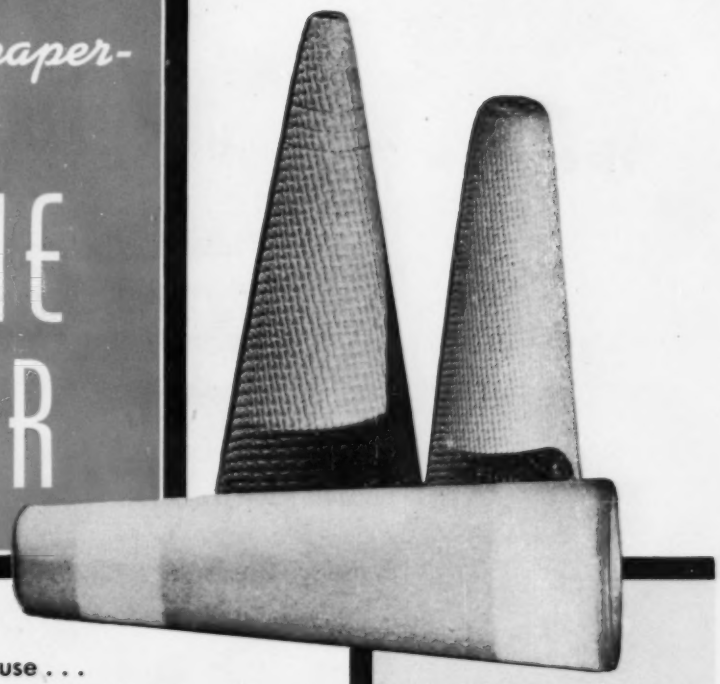
If it's made of paper-

SONOCO

HAS THE ANSWER



because . . .

SONOCO is constantly striving to improve present products and conducts a continuing program of research and development to meet the needs of an ever-changing textile industry.

SONOCO paper products have become "standard of the world" wherever textiles are made . . . a "plus value" advantage which has resulted in industry-wide benefits since 1899.

TUBES

Spiral, convolute, parallel or drawn construction from ⅛" to 48" I.D. in any practical length and wall thickness — for every textile need! Available in colors, various surfaces, treated, impregnated, perforated, scored, notched, printed, with crimped or burnished ends.

CONES

Available with various surfaces, inside and outside printing, notches, scores, perforations and in many nose and tip designs. Lacquer tipping, dyed base and tip, and striped base can be furnished for yarn identification.

SPOOLS

A complete variety of standard sizes, or made to your order. Available with plain, printed and treated heads. Also standard and special tapered base single head thread spools in fibre and plastic.

Consult an experienced SONOCO sales-engineer or write us direct!

SONOCO PRODUCTS COMPANY

MAIN OFFICE — HARTSVILLE, S. C.

MYSTIC, CONN. • AKRON, IND. • LOWELL, MASS. • PHILLIPSBURG, N. J.
LONGVIEW, TEXAS • PHILADELPHIA, PA. • LOS ANGELES, CAL.
GRANBY, QUEBEC • BRANTFORD, ONT. • MEXICO, D. F.

DEPENDABLE SOURCE OF SUPPLY

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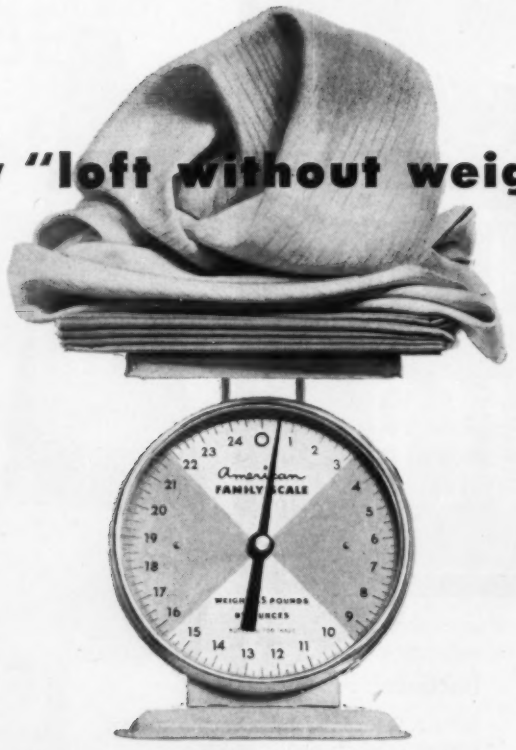
the new "loft without weight" fiber



BULKED ACETATE NOW READY IN THE MOST IMPORTANT **CELAPERM** COLORS

BULKED ACETATE, the significant new Celanese fiber that creates textured, lofted fabrics without excess weight and with muted lustre is now available in the most complete color range in the trade. 350 and 1050 deniers in bulked acetate are ready in the most important shades of the exhaustive Celaperm range. This color range is already well accepted throughout home furnishings and apparel as an authoritative color index. Now it is coupled with the important trend to textured effects, making possible an unlimited number of color combinations in an unlimited variety of textures. Natural bulk acetate yarns are also available in both 350 and 1050 deniers. If you have not seen these new yarns and what they can do for your fabric line, see Celanese Corporation of America, New York 16.

Celanese®

Celanese CONTEMPORARY FIBERS

ARNEL* TRIACETATE CELAPERM* ACETATE FORTISAN* RAYON

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SETTING
NEW STANDARDS
OF PERFORMANCE...

Another
LUNKENHEIMER
FIRST!

THE
LQ600
VALVE

FIG. LQ600-200
200 lb. S.P.—400 lb. W.O.G.
550° F.

FIG. LQ600-150
150 lb. S.P.—300 lb. W.O.G.

¼ to 2 inches

Thousands of these valves have served for as long as five years without replacement, regrinding, maintenance, or leakage—even on the most severe services. Their patented Brinalloy* seats and discs are more resistant to wear and corrosion than 500 Brinell Stainless Steel . . . even outlast case-hardened Stainless Steel exceeding 1000 Brinell. LQ600 Valves practically eliminate maintenance costs!

*Patented Alloy—T. M. Reg.

SEE YOUR LUNKENHEIMER DISTRIBUTOR
or write for literature
THE LUNKENHEIMER CO., CINCINNATI 14, OHIO

LUNKENHEIMER®
THE ONE Great NAME IN VALVES

L-456-28

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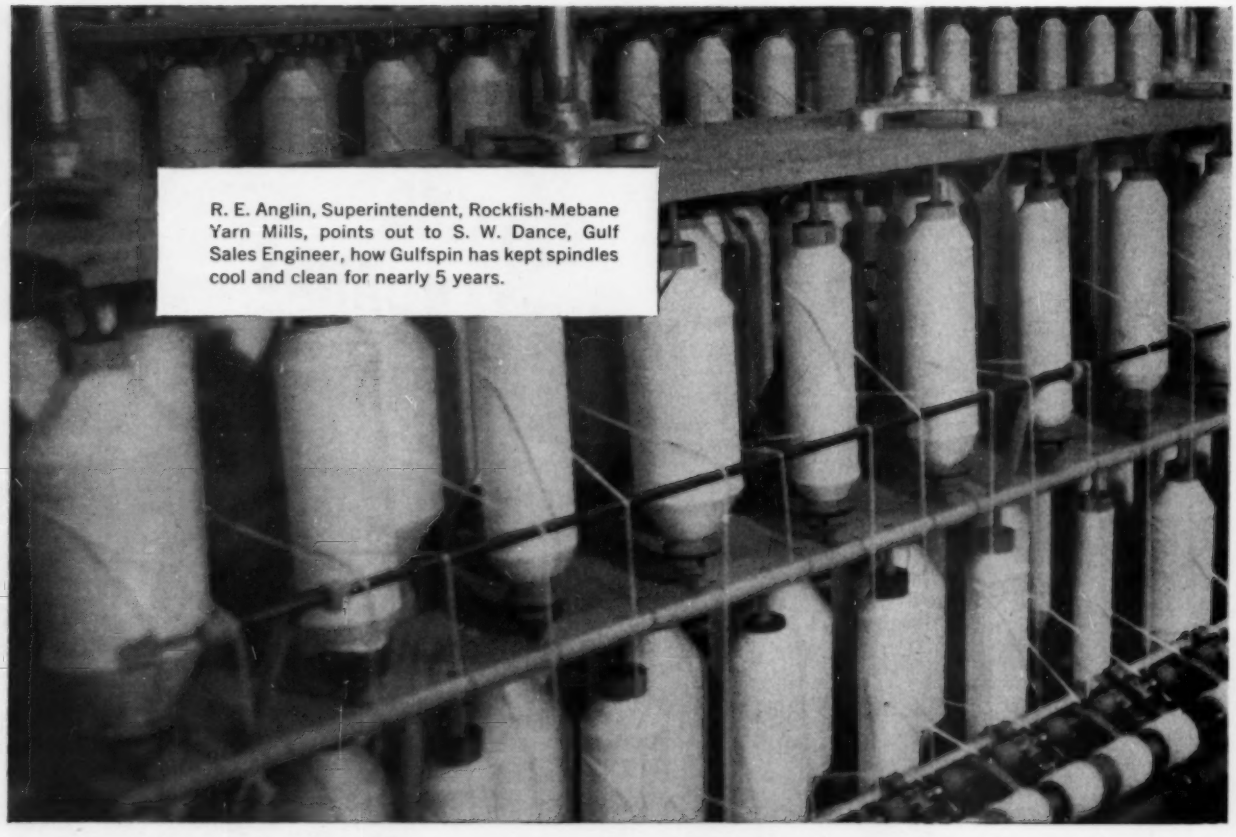


R. E. Anglin, Superintendent, Rockfish-Mebane Yarn Mills, points out to S. W. Dance, Gulf Sales Engineer, how Gulfspin has kept spindles cool and clean for nearly 5 years.

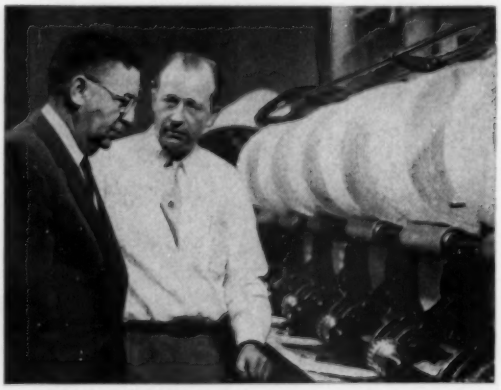
Rockfish-Mebane Yarn Mills cut

Rockfish-Mebane Yarn Mills have used Gulfspin for nearly 5 years to keep spindles performing efficiently. Gulfspin offers immediate savings in 3 different ways: cuts spindle cleaning costs; conserves power, and reduces maintenance costs.

Gulfspin minimizes the formation of sludge, gum and resin that make spindles stick. With Gulfspin, spindles stay clean. You save money on cleaning costs.

Gulfspin viscosity stays the same over long periods of time—8 years in one recently checked mill! Because viscosity doesn't increase, you drive your spindles without wasting power. This means substantial savings in power costs.

Gulfspin also prevents rust, and has exceptionally high load-carrying ability. It



Gulf Harmony Oil is highly resistant to oxidation, lasts indefinitely. It is the oil used to lubricate gears and bearings on this Saco-Lowell Comber.

← For more data, write this page number on Reader-Service card.

costs 3 ways with GULFSPIN

provides better protection against excessive wear. By using Gulfspin, you cut costs straight down the line.

Another great oil developed by Gulf and widely used at Rockfish-Mebane is Gulf Harmony. Gulf Harmony provides a tough lubricating film, resists oxidation, leaves no harmful deposits. Available in a wide range of viscosities.

For further information on either Gulfspin, Gulf Harmony Oil—or both—contact a Gulf Sales Engineer at your nearest Gulf office.

GULF OIL CORPORATION
GULF REFINING COMPANY
1822 Gulf Building
Pittsburgh 30, Pennsylvania

THE FINEST PETROLEUM PRODUCTS FOR ALL YOUR NEEDS

GULF

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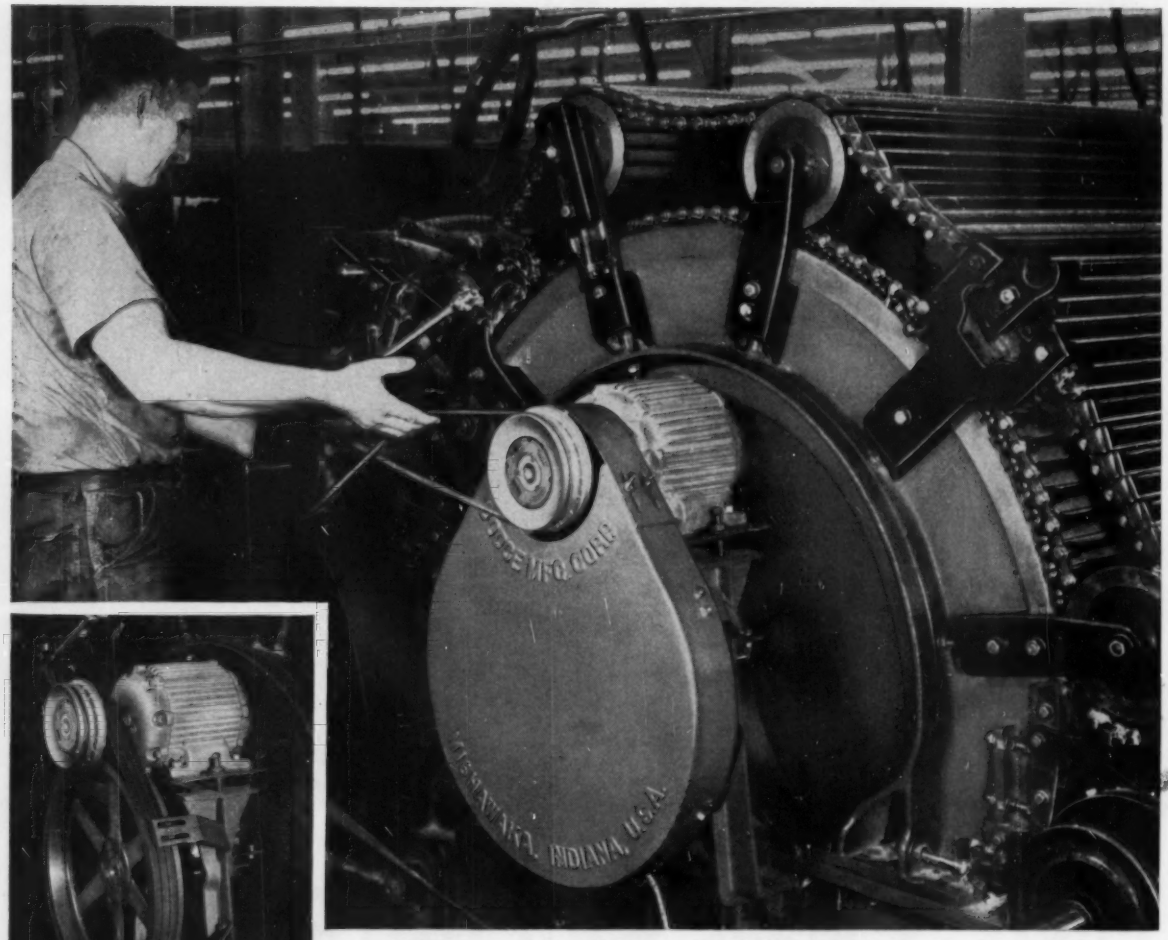

New Drive REVOLUTIONIZES CARD PERFORMANCE ... STARTS SOFTLY ... ACCELERATES QUICKLY TO FULL SPEED ... AVOIDS EXCESSIVE STRAIN

Components of Dodge FLEXIDYNE Card Drive

- **Flexidyne, keyed to motor shaft**
- **Pedestal, supporting motor**
- **V-flat drive**
- **Aluminum stripper pulley**
- **Aluminum guard**

A complete package, ready to install.

Flexidyne, heart of this new complete Card Drive by Dodge, picks up the load smoothly ... protects machinery and motor against shock and overload ... delivers 100% efficiency during running cycle. Flexidyne, *the Dry Fluid Drive*, eliminates need for high torque motors and expensive controls, saves power, provides a new and better way to drive textile machines.

Note the special aluminum pulley mounted on Flexidyne housing, enabling quick, convenient operation of stripper. Pedestal has adjustable motor base to control tension on V-belts. You should have the full story of all the advantages of the new Dodge Flexidyne Card Drive. Ask your local Dodge Distributor, or write us, for new illustrated Bulletin A-653.

DODGE MANUFACTURING CORPORATION
1400 Union Street, Mishawaka, Indiana

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Machinery" in your classified telephone directory, or write us.

DODGE
of Mishawaka, Ind.

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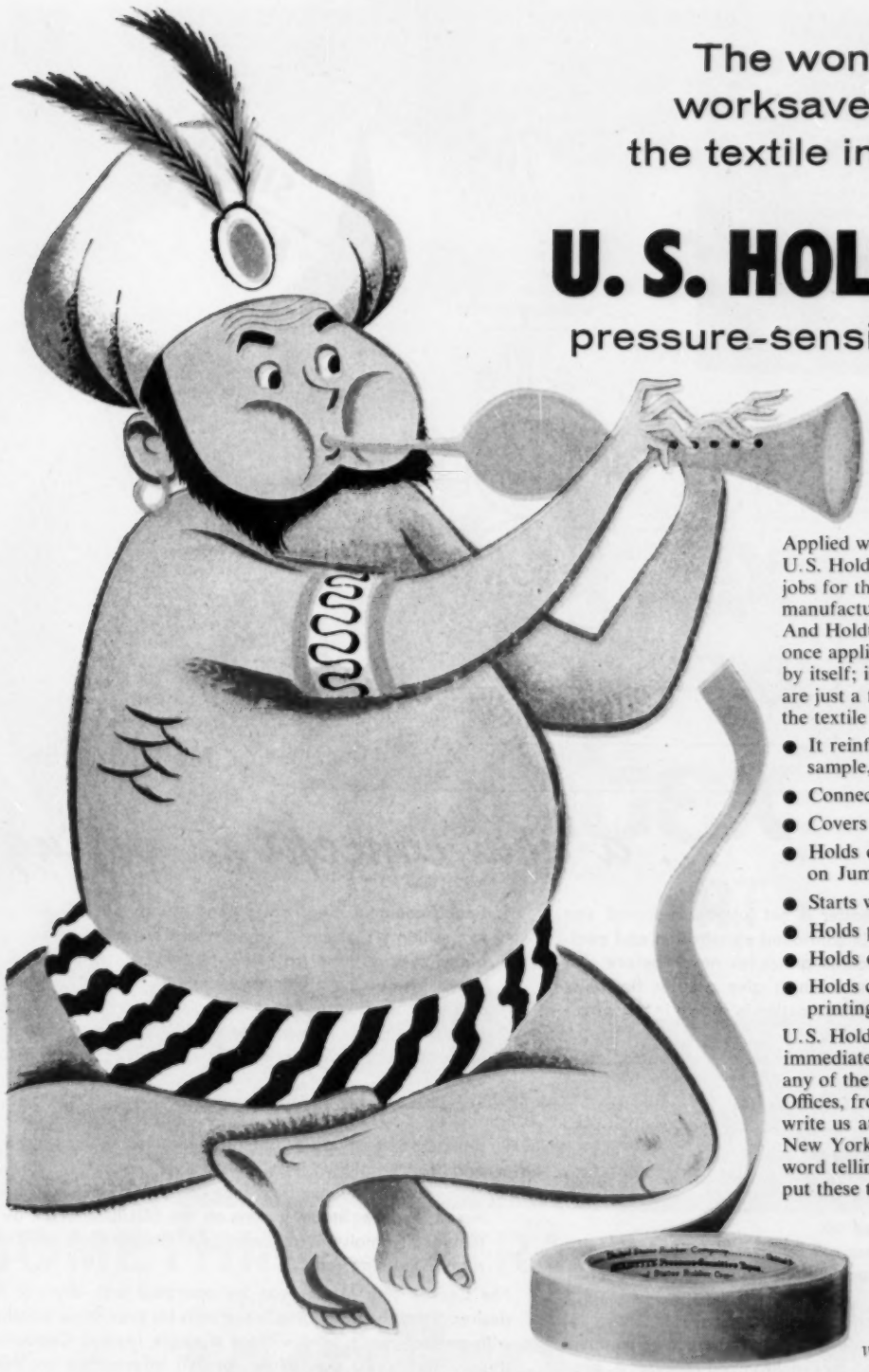

The wonder worksaver for the textile industry

U. S. HOLDTITE®

pressure-sensitive tape

Applied with just finger pressure, U.S. Holdtite tape does dozens of jobs for the textile worker in manufacturing and finishing cloth. And Holdtite is correctly named—once applied, it can never get loose by itself; it must be removed. Here are just a few of Holdtite's uses for the textile man:

- It reinforces the back of cloth sample, making it lie flat.
- Connects mill ends of cloth.
- Covers loom reed.
- Holds down outside lap of cloth on Jumbo Rolls.
- Starts warp ends on beam shaft.
- Holds plastic goods to start roll.
- Holds ends after slashing.
- Holds cloth to table in screen printing.

U.S. Holdtite strips clean. For immediate delivery, order now from any of the 28 "U.S." District Sales Offices, from your distributor, or write us at Rockefeller Center, New York 20, N. Y. We welcome word telling of uses to which you put these tapes.

Watch NCAA football Saturday afternoons, NBC-TV

Mechanical Goods Division

United States Rubber

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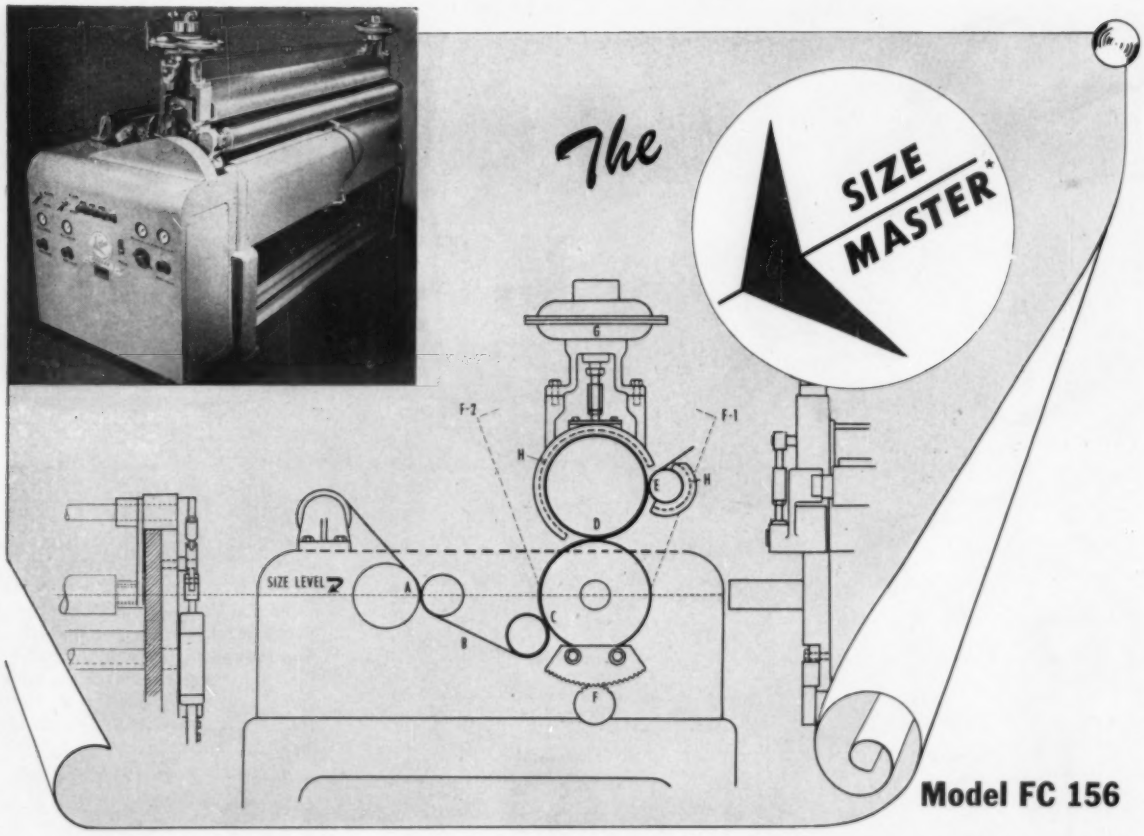
The SIZE MASTER*



Model FC 156

... a new concept in sizing

The New Cocker Size Master is not just an improved size box, but a new concept in controlled penetration and coating warp yarns. It embodies principles never before employed in sizing equipment which give greater flexibility and more even penetration. Its action is shown in the drawing above.

a. Air trapped between fibres is squeezed out immediately before yarn enters size.
b. Just as a sponge which is squeezed before immersion will absorb more water more easily and completely, the yarn will absorb more size.
c. Size is padded in the usual manner, as well as under the solution.
d. Excess size is squeezed out.
e. Rubber covered dresser roll removes the size left on the side which was in contact with the lower stainless steel roll.

Auto-Positioner Roll

This tremendously valuable device automatically compensates for changes in speed by synchronized changes in position and pressure of the top rolls.

f. Speed compensating rocker action automatically swings to position f-1 at crawl, when size pick-up is low — thus allowing yarn more travel before excess is removed. As speed increases the unit moves to f-2, decreasing travel and removing more excess size.
g. Roll pressure is synchronized with this compensating rocker action. It decreases at low speeds — increases at high.
h. **THE EQUILIBRATOR**** This greatly reduces lapping and napping. On ordinary equipment the top and dresser roll temperatures are usually about 18° lower than those in the size box, thus permitting some hardening of the size. Steam jackets on the EQUILIBRATOR automatically moisten and maintain temperatures on the rubber finishing rolls.

The Cocker Size Master can be operated with dry nip if desired. It has been running in test mills for over three months with perfect results and *without a single lap-up*. Capacity approximately 20 gal. Write for full information on this revolutionary equipment today.

THE LEADER AROUND THE WORLD
COCKER Machine and Foundry Co., Gastonia, N. C.

WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

*Reg. Trade Mark
**Patented

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SOMETHING EXTRA IN white

Because whiter whites move merchandise, the finishing of white fabrics calls for a higher degree of whiteness than ever.

UVITEX TXS Conc. produces outstanding whites on cottons and rayons—by exhaust application.

UVITEX RT, for cotton, wool, nylon and other fibers. Applied from neutral bath at room temperature or in hot dyebath. Compatible in finishing bath.

CIBA

Fast Shades faster with the Cibalans® Extend their use with . . .

Cibalan Salt S

enables wool to be dyed with Cibalan colors in acid bath (pH 3-7)

Cibalan Salt S

provides exhaustion control of Cibalan colors in nylon dyeing

Cibalan Salt S

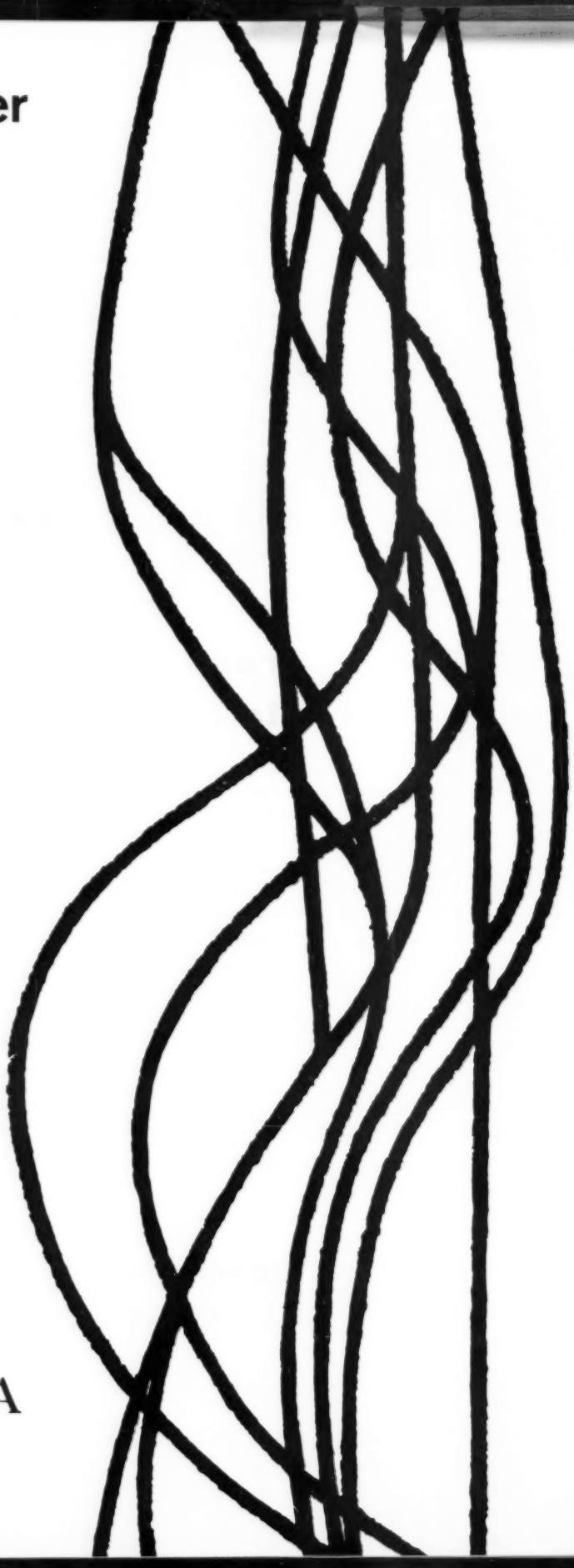
permits Cibalan dyeing of wool or nylon at any processing stage, with dyeing method adapted to suit the finish required

Cibalan Salt S

does not affect the character of wool or nylon

Cibalan Salt S

leaves fastness properties of Cibalan dyeings unimpaired.



CIBA

Armstrong press roll covering reduces fabric creasing

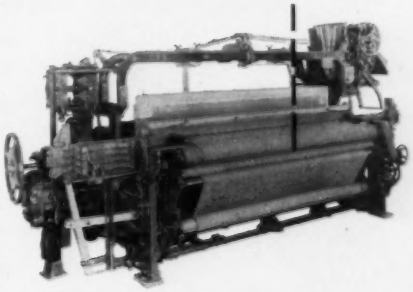
Armstrong DK-149 Press Roll Covering greatly reduces fabric creasing by eliminating one of its basic causes: uneven maintenance of take-up tension.

This unique cork-and-sponged-rubber material has just the right combination of resilience and high surface friction to hold cloth snugly against the full width of the take-up roll. The result is that fabric never slips or runs unevenly.

Despite this firm grip, the finely textured surface of DK-149 won't mark even the finest fabrics. DK-149 won't pack down or develop high spots even after years of service.

DK-149 Press Roll Covering comes in handy ribbon form for quick application to the roll. Your Armstrong man will be glad to show you samples and set up a test on your own looms.

For more information about DK-149 and other Armstrong weave room items, send for our new booklet, "Armstrong Loom Supplies." Write Armstrong Cork Company, Industrial Division, 6911 Dauphin Street, Lancaster, Pennsylvania.



Armstrong LOOM SUPPLIES

. . . used wherever performance counts

LOOM CLUTCH DISCS AND INSERTS • TAKE-UP ROLL COVERINGS • LOOM BRAKE AND LET-OFF STRIPS • TEMPLE ROLL COVERINGS

A tiger once looked very queer
'Cause the sun made his stripes disappear
But they never would fade
If the tiger were made
*Of Coloray rayon. That's clear!**

*SERIOUSLY—the sunfastness of Courtaulds' Coloray rayon fiber has never been equalled in such a wide color range. Eight Coloray colors refused to fade after 500 scorching hours of exposure to South Florida sunlight. Other "colorfast" colors are happy to resist fading after only 80 hours of exposure. *Here's fastness over six times better! All* Coloray colors offer many times the fastness customers expect—or even hope for. Consider what colorfast Coloray colors mean in sports clothes, draperies and convertible tops—to name just a few of the popular items made with Coloray. They mean *business!* Make sure you get your share.

COURTAULDS'

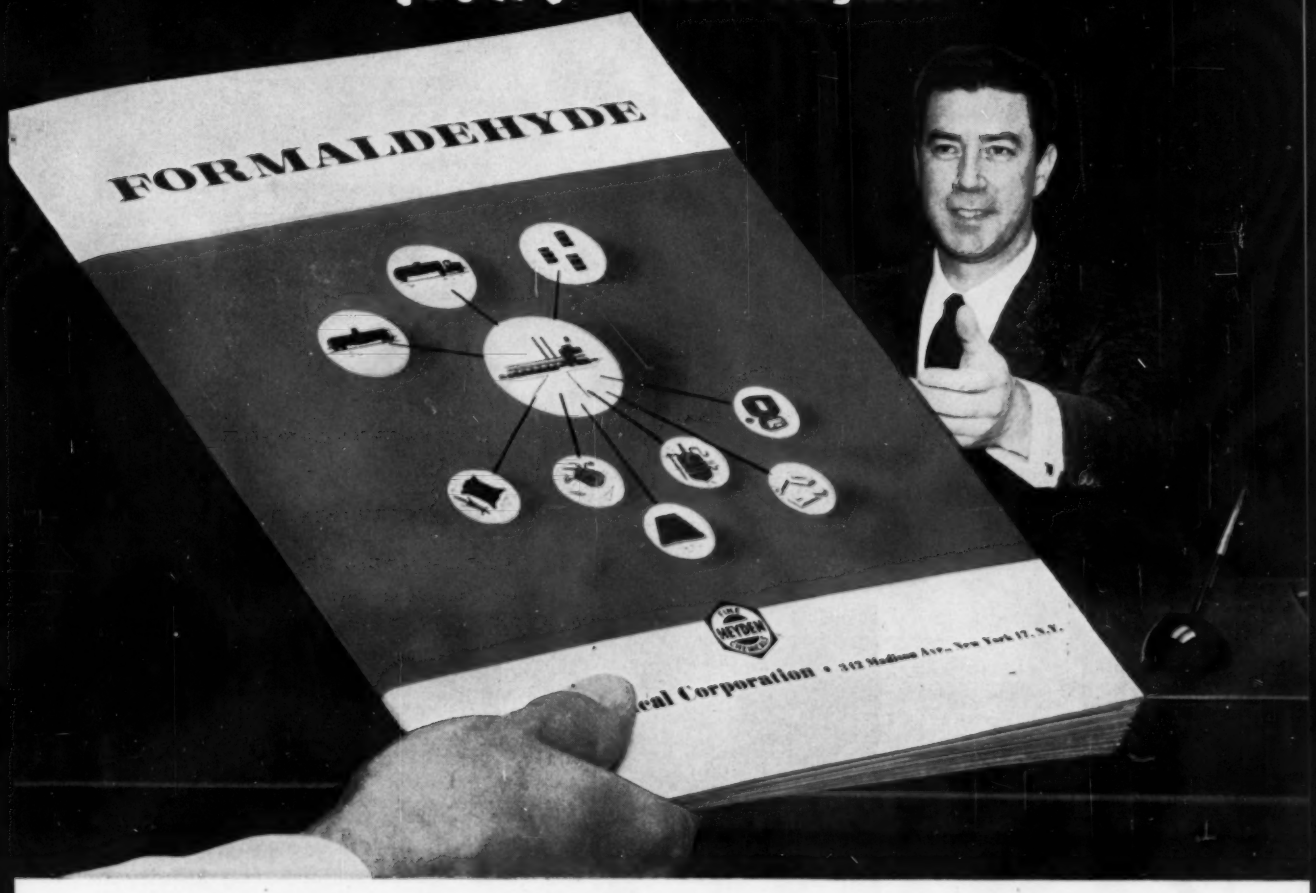
COLORAY

Rayon fiber with Captive Color . . . *"can't escape!"*

For further information, write:

COURTAULDS (ALABAMA) INC. • *First name in man-made fibers, first name in solution-dyeing*
600 FIFTH AVE., NEW YORK 20 • Greensboro, N. C. • Le Moyne Plant, Mobile, Ala.

New! --- from Heyden



---you'll want these facts on

FORMALDEHYDE

This informative Heyden Booklet—just off the press and ready for the process industries—contains technical information on formaldehyde which will be of value to you in your production and development work. It answers questions on physical properties, specifications, typical reactions and construction materials for storage and handling. It gives detailed facts on industrial applications in the fields of agriculture, plastics, pharmaceuticals, dyes and textiles, metals, paper, rubber, petroleum, leather, explosives.

The new Formaldehyde booklet contains: Product Data . . Methods of Analysis . . Safe Handling . . Materials of Construction . . Storage and Shipping Data . . Industrial Applications.

A request on your company letterhead will bring you a copy of this interesting booklet.

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Benzaldehyde • Benzoic Acids • Benzyl Chloride • Beta-Oxynaphthoic Acid • Chlorotoluenes • Creosotes • Formaldehyde • Formic Acid • Guaiacols
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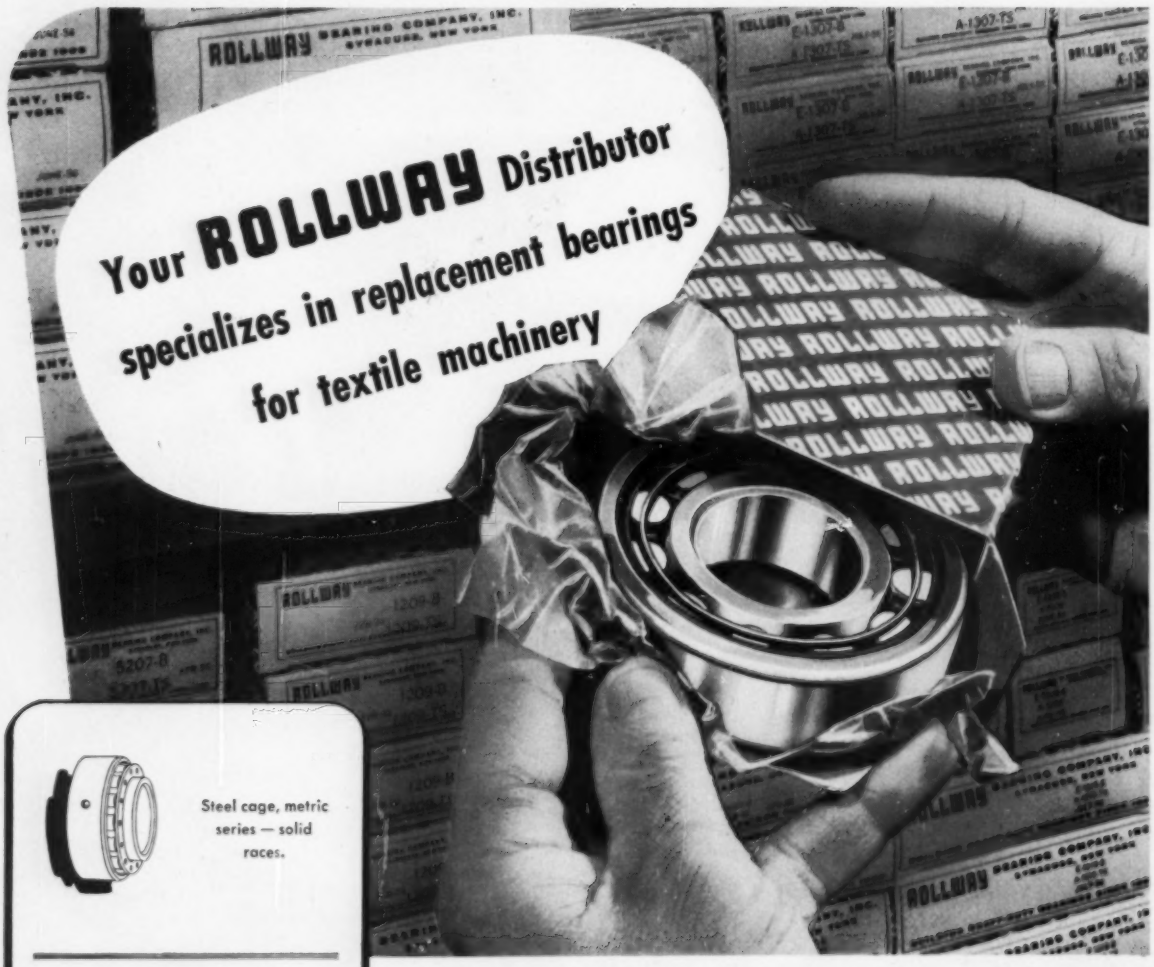

Steel cage, metric series — solid races.

Steel cage, inch series — planished sleeves.

Steel cage, inch series — no races.

Tru-Rol heavy duty, steel cage type. *All* Tru-Rol bearings have crowned rollers.

Name the machine: card – loom – drawing, roving or spinning frame – fulling mill . . . and your Rollway distributor has exactly the right bearing for each job.

Where freely turning shafts are the key to prevention of fibre stretching or breakage, Rollway assures continuous freedom from binding.

Where uniformity of thread or weave depends on absence of shaft displacement, Rollway provides unwavering rotation.

Where three-shift runs tax bearings to the utmost, Rollway delivers maximum hours of trouble-free performance.

There is a Rollway Bearing distributor near you. Call on him to deliver expert assistance in choosing just the right bearings for replacement service on any textile machine or motor.

ROLLWAY BEARING CO., INC., SYRACUSE, N. Y.

ROLLWAY®
BEARINGS

Complete Line of Radial and Thrust Cylindrical Roller Bearings

ROLLWAY ENGINEERS will be glad to help you in your efforts to lower your bearing costs . . . in standard or out-of-the-ordinary applications. Simply write, phone or send prints.

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your Two best sources for UREA

Allied

...and

Allied

Allied's Nitrogen Division has 2 urea plants – one at South Point, Ohio and one at Omaha, Nebraska. When considering your source of UREA supply, Allied tops the list with its multi-plant production. Quality? Very high. Delivery? Fast – no matter where you are, thanks to widely separated producing locations. Carlots and trucklots from the plants. LCL from warehouse stocks in Passaic, N. J.; Chicago, Ill.; Providence, R. I.; East St. Louis, Ill.; and Charlotte, N. C. All shipments in easy-to-use, 100 lb. moistureproof multiwall paper bags.

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Ethanolamines • Ethylene Oxide • Ethylene Glycols • Urea • Formaldehyde • U. F. Concentrate—85 • Anhydrous Ammonia • Ammonia Liquor • Ammonium Sulfate • Sodium Nitrate • Methanol • Nitrogen Tetroxide • Nitrogen Solutions • Fertilizers & Feed Supplements

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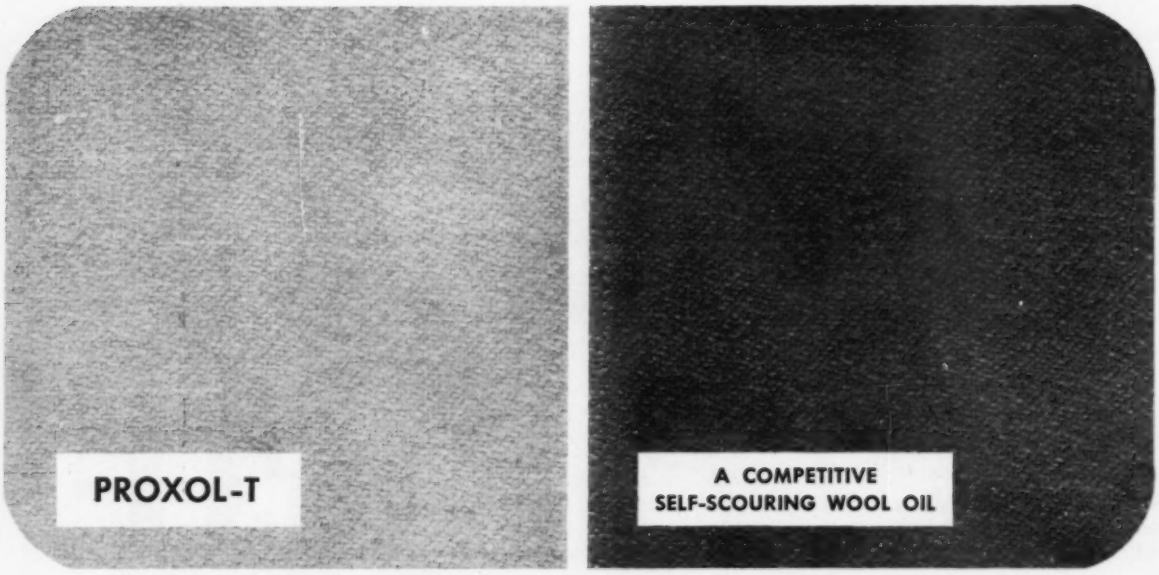
COMPARE!



One good way to determine whether a wool oil scours out well is to add an oil-soluble color to the oil, oil the fabric and then scour it. The intensity of the color after the scouring shows how much oil is left in the fabric. The two flannel swatches above were so tested. After the oiling—and the addition of color—both swatches were hand-washed in warm water only—no soap or detergent. The photographs tell their own convincing story.

EASIER and more effective scouring is only one of the many advantages you gain by using Proxol-T. In fact, continued use of this finer product brings you one of the biggest advantages you're looking for: *better, smoother processing at every stage* of your operations—and at a surprisingly low cost!

Test Proxol-T in your own mill—and in your customers' plants—and discover what Proxol-T can do for you and your customers' fabrics. The Procter & Gamble textile man in your territory will be glad to give you all the facts about Proxol-T and make arrangements for a trial in your mill.

- easier scouring
- greater moisture retention
- better static control
- better carding

Proxol T

- higher spinning efficiency
- stronger, more uniform yarns
- higher yields
- better aging properties

Procter & Gamble Textile Finishes Sales Dept., Cincinnati 1, Ohio

Makers of **PROFINE** *products,* **ORVUS** *products,* **KYRO** *products,* **OLATE** *and other top-quality soaps and detergents*

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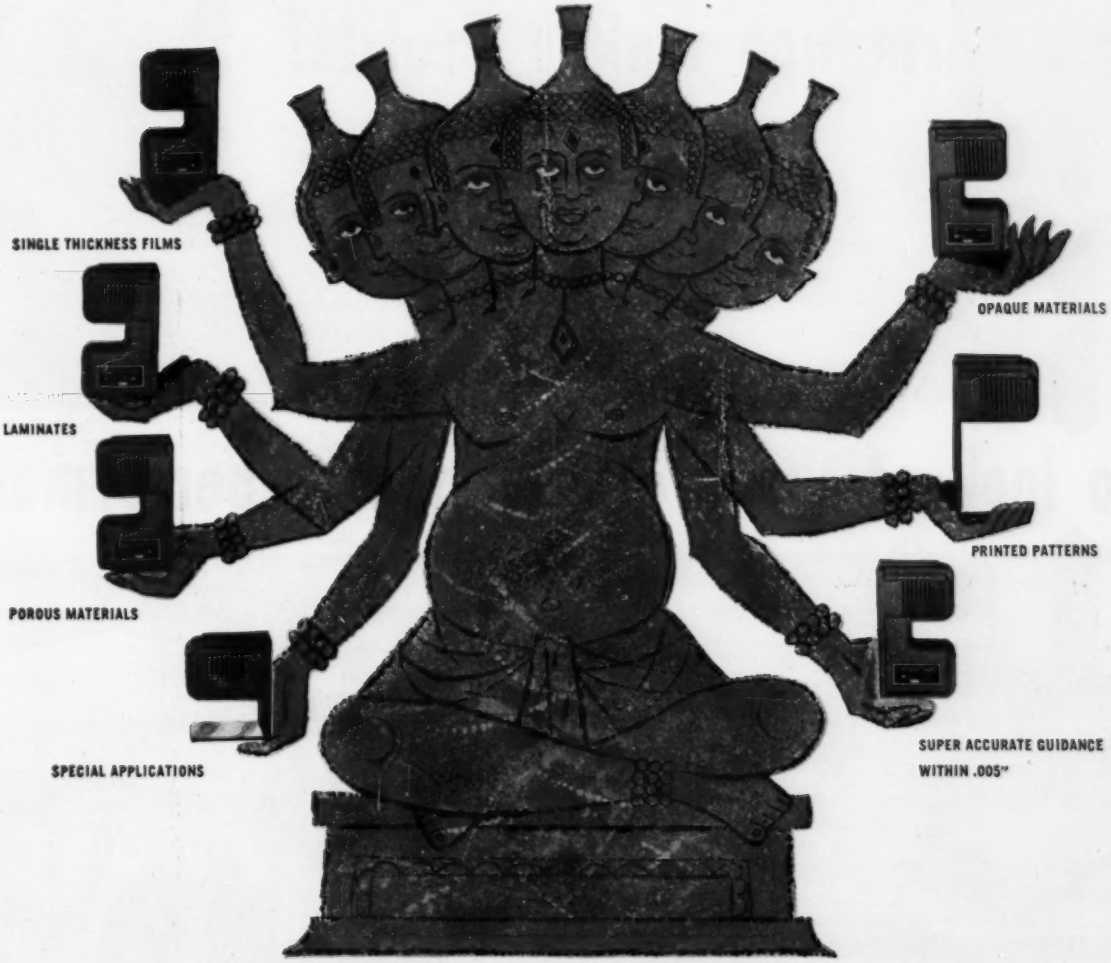
7 heads are better than.. anything*

ESPECIALLY IF THEY'RE "LINAR" EDGETROL® SENSING HEADS*



** 7 different sensing heads are now available for the "Linar" Edgetrol Photoelectronic Edge Guidance System which will solve your guidance problems the modern automation way. If any of these heads can't lick your problem, we'll build you an eighth, ninth, tenth ... to your order to serve your specific need. Just call or write. We'll put our engineers (one head each) to work at once.*

"LINAR" EDGETROL—Inspected and Overwhelmingly Approved at the New York ISA Show

For free informative brochure write directly to:

Intercontinental Dynamics Corporation

170 COOLIDGE AVENUE • ENGLEWOOD, NEW JERSEY

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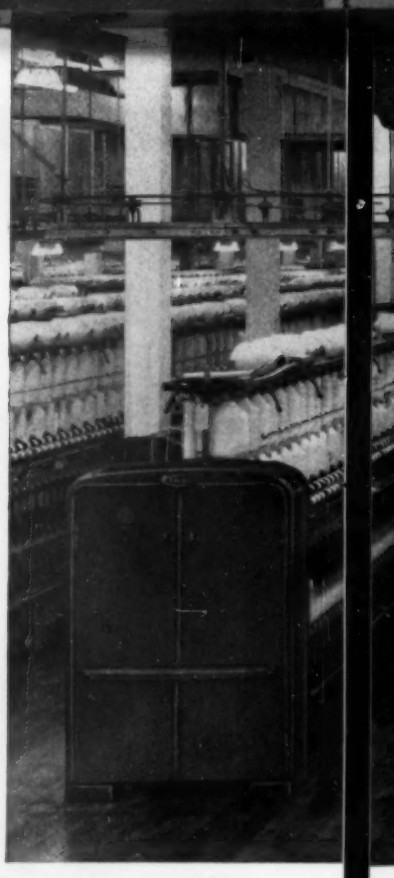
Statistics make headlines... *but* Performance makes Profits!



Statistics for machine production often make news, but actual machine performance plays the decisive part in creating mill profits. The performance of Whitin Superflex Spinning frames and the profits they are producing now in many leading mills are the best test of their true worth. That's why Whitin Superflex Spinning frames are the continuing and growing choice of mills demanding maximum yarn quality and minimum spinning costs — the essential ingredients of profits.

..so look at the profit-producing performance

Photographs show recent installations of Whitin Superflex Spinning Frames

# of Whitin SUPERFLEX* SPINNING

As a specific example of the advanced economies and practical benefits that can be secured with Whitin Superflex Spinning frames, the following mill data is presented, based on actual operating conditions in the production of high quality print cloth, 80 x 80, 39", 4.00 yds./lb., 31's warp and 41's filling.

	Warp	Filling
Yarn No.	31's	41's
Gauge	3½"	3"
Ring	2"	1⅞"
Traverse	11"	7"
Wt./Yn./Bobbin	.345 lbs.	.119 lbs.
Spindle R.P.M.	10,300	11,000
Traveler Speed, F.P.M.	5376	4140
Twist Multiplier	4.25	3.90
T.P.I.	23.7	25.0

	Warp	Filling
Front Roll Speed	138	140
% Efficiency	95	95
Lbs./Spdle./Hr.	.0265	.0203
Lbs./Spdle./120 Hrs.	3.180	2.436
Spdles./Operator	3900	3864

Labor cost per lb. including all direct and indirect help in Spinning Room . . . . . $.03322

For complete information ask your Whitin representative or write direct to us.

WHITIN MACHINE WORKS — FOR 125 YEARS — ONE COMPANY WITH ONE PURPOSE — SERVICE TO THE TEXTILE INDUSTRY — 1831–1956

Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

Allied Chemical's

caprolan®

tensile-tough nylon

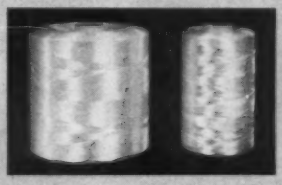
NYLON HEAVY YARNS

COMBINE DURABILITY, EASE OF DYEING, NEW SURFACE INTERESTS

Where beauty must be durable, Caprolan *deep-dye* nylon heavy yarns (2,000 denier and up) make it easy to obtain uniform shades of high fashion colors in high strength nylon yarns.

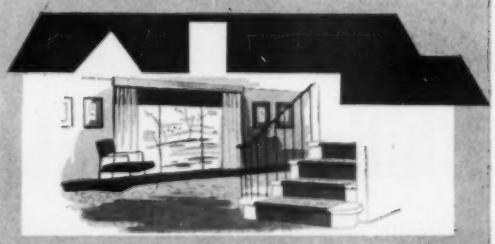
The product of over 12 years' original research by Allied Chemical, Caprolan has all the qualities normally expected of nylon and some new ones of its own. Most important of these for decorative fabrics is an unusual affinity for almost any class of dyestuff. When Caprolan is combined in fabric with other nylon, the greige goods can be dyed in a single bath to give new and interesting tone-on-tone effects.

Caprolan offers you completely new design opportunities, as well as excellent hand and unusual and lasting whiteness, with no appreciable yellowing in storage. Available for both decorative and industrial fabrics, Caprolan heavy yarns can be engineered to your specification from 2,000 to as high as 50,000 denier. It can be ordered on knotless 30-pound and 10-pound parallel, non-returnable tubes, providing you longer runs between creelings, shorter conditioning cycles, ready dyeability, and the elimination of costly finer denier inventories. For more information about Caprolan nylon heavy yarns, call or write us today.

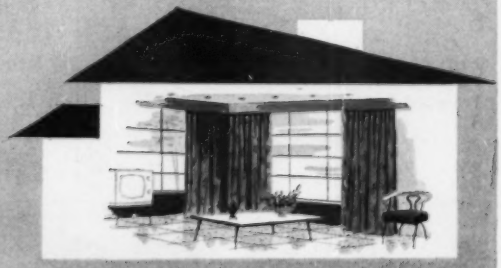


KNOTLESS 30-LB. AND 10-LB. PACKAGES ON PARALLEL, NON-RETURNABLE TUBES!

Upholstery



Carpets



Draperies

Fiber Sales and Service Allied Chemical *National Aniline Division*

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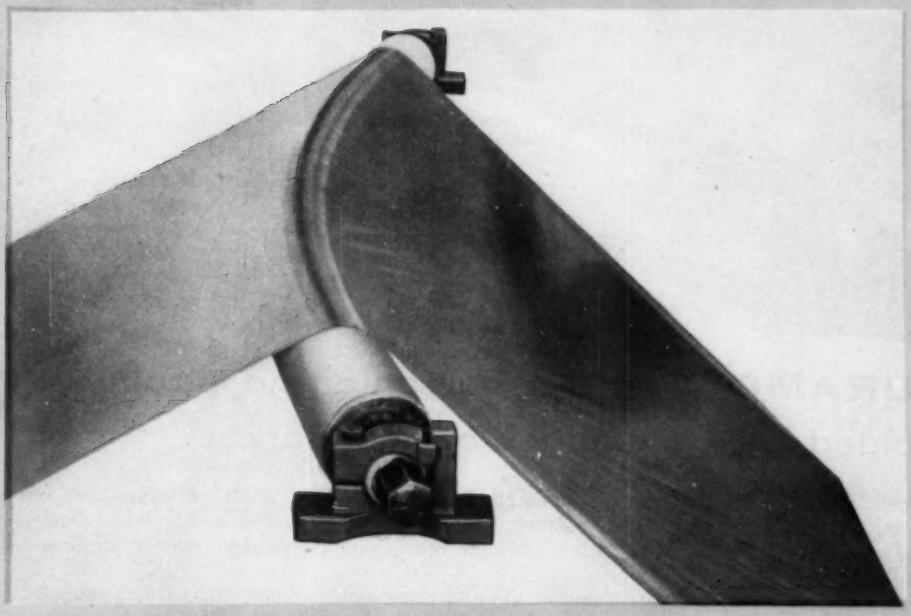
Branch Offices—Jefferson Standard Building, Greensboro, N. C., 200-204 S. Front St., Phil. 6, Pa., 15 Westminster St., Providence 3, R. I.

Mount Hope SYSTEM

"FREE WHEELING" EXPANDERS will keep your FABRICS DISTORTION-FREE!



Mount Hope "FREE WHEELING" EXPANDERS give you maximum width with minimum warp tension, assuring distortion-free, wrinkle-free fabrics. Eliminate spoiled yardage by keeping your fabrics smooth!

For Maximum Production — Lower Cost, Minimum Seconds — USE the complete MOUNT HOPE SYSTEM

Write for a Production Cost Survey of your plant.
Write for Bulletin No. 7640.

Originator of Modern Expanders • Leader in Cloth Handling Equipment

Southern Repair Shop — Charlotte, N. C.

MOUNT HOPE MACHINERY COMPANY

151 FIFTH ST., TAUNTON, MASS.

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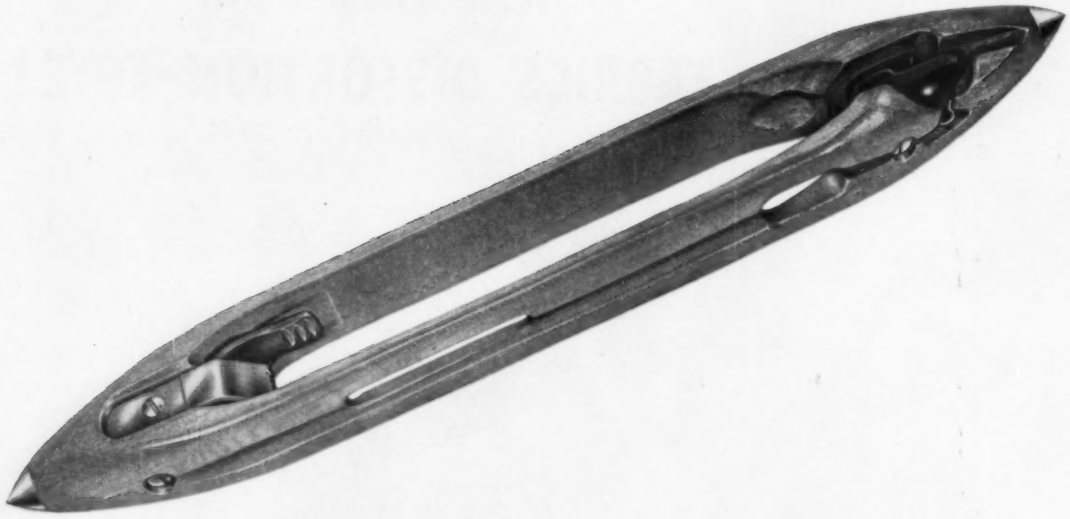
DURAMOLD SHUTTLES

Last 3 times as long as wood



DURAMOLD—most versatile and strongest molded plastic shuttles on the market

Rugged Duramold Shuttles are manufactured from a single solid, uniform piece of Westinghouse Micarta, remarkably strong, grainless molded plastic, composed of laminated twill fabric impregnated with a phenolic resin, which provides greatest unidirectional strength.

You will get greatly increased shuttle life and lower maintenance costs when you use Duramold Shuttles because the engineering skill of Southern Shuttles Division has taken this superior material and produced the strongest shuttle ever made.

The method of molding and manufacture of Duramold Shuttles permits much greater versatility of construction, such as tip location, eye location, chamber lengths, shuttle widths, etc.

Vastly improved material strength reduces premature failures, prevents splitting and splintering. In fact, the surface becomes smoother with use, thereby reducing friction.

Denser material allows more positive seating of the shuttle parts, reducing the possibility of loosening and rocking to a minimum.

Extension of the tough side wall laminates all the way to the tip greatly increases the strength of this section. Wall sections are thicker for greater strength, and the corners at both ends of the chamber are reinforced. Macerated end blocks are molded into the shuttle to provide flexibility for absorbing shock at these points.

Take advantage of the tremendous savings possible in your weaving room costs with Duramold Shuttles.

Other Plants and Offices: Granby, Quebec, Canada—Lawrence, Mass.—Greensboro, N.C.—Atlanta, Ga.—Textile Supply Co., Dallas, Texas—Albert R. Breen, Chicago, Ill.

Stehedco
STEEL HEDDLE MFG. CO.
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SOUTHERN SHUTTLE DIV.
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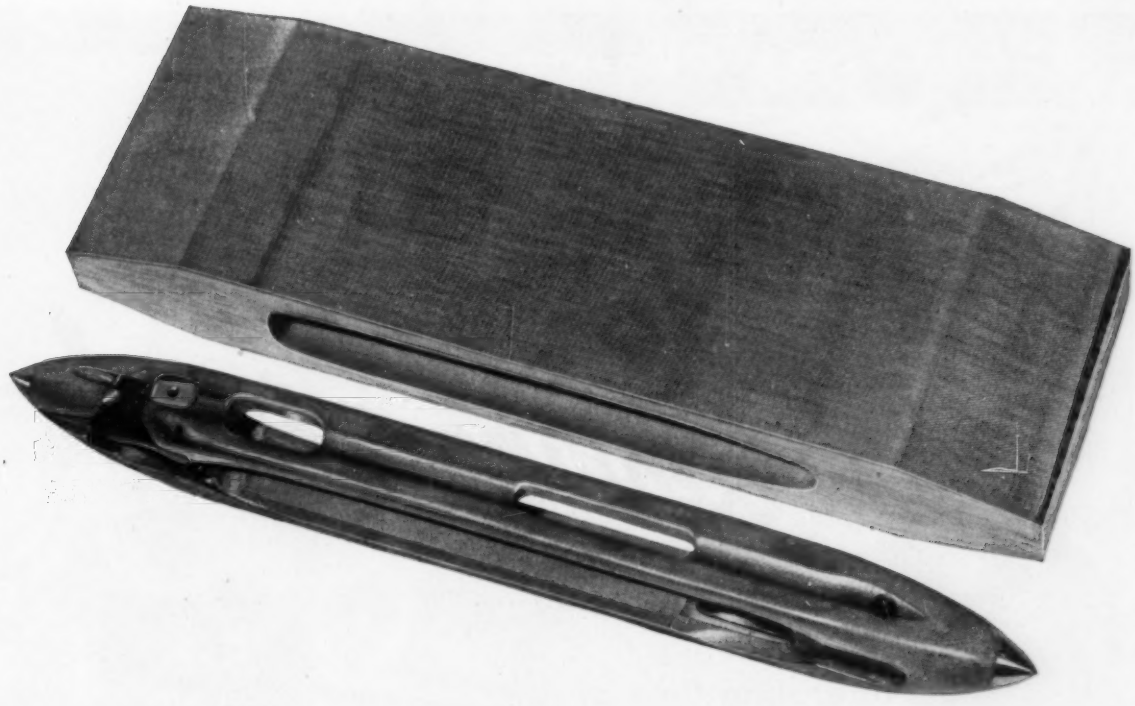
Southern

9-5-56

TEMPERED — QUALITY Stehedco CONTROL — STEHIDE

World's largest manufacturer of all type Shuttles

Comparison made them famous



New **MICARTA**® plastic shuttle lasts at least 3 times as long as wood

Rugged Westinghouse Micarta molded-plastic shuttles reduce your weaving room costs by giving you longer shuttle life and lower maintenance costs.

When you consider what conventional shuttles can cost you in breakage of shuttles, picker sticks and other vulnerable parts, increase in off-quality cloth, loss of production and higher labor and repair costs, it's easy to figure what long-lasting Micarta shuttles can mean to your weaving room.

Shuttles are produced out of a solid, uniform piece of grainless molded plastic.

There is no cracking or breaking . . . no snagging of delicate fabrics . . . no need to worry about splintering.

Westinghouse does not make the finished shuttle, but supplies shuttle forms to the Southern Shuttles Division, Steel Heddle Mfg. Co., Greenville, S. C., which produces economical, long-life Micarta shuttles under the trade name Duramold. Make sure Micarta plastic is used in the shuttles you buy for your mill. J-06633-X

WATCH WESTINGHOUSE!

*WHERE **BIG** THINGS ARE HAPPENING FOR **YOU!***

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Setol Cleanser HAS WHAT IT TAKES
TO MACHINE-SCRUB OILY FLOORS—

Faster cleaning action!

Cuts operating time of the scrubbing machine

Because *Setol* is specially compounded for the greater speed of *combination-machine-scrubbing*, it must *and does* work faster than average alkaline cleansers. *Setol* saponifies *and emulsifies* grimy oil and grease *instantaneously*. The wetting agent in *Setol floats the oil* for fast, easy, *and thorough* removal by the vac of a *combination machine* or with a separate vac unit. And because *Setol* stays fast-acting longer—does not spend its strength quickly as do ordinary oil and grease solvents—less is required to clean a given area. Thus *Setol* saves on materials and, by speeding the cleaning process, cuts operating time of the scrubbing machine . . . reduces labor costs . . . and saves on brushes. Best of all, *Setol gets floors oil-free clean!* Also acts as a disinfectant (contains pine oil), and leaves a pleasant, clean aroma.

- **A constant, fast-acting cleanser for machine-scrubbing cement, wood, wood block, metal, stone, and terrazzo floors**
- **Consistent use on cement floors prevents cement dusting . . . provides a finish that helps seal out waste materials**

Finnell 213P Scrubber-Vac

Applies cleanser, scrubs, and picks up — in ONE operation!

For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 1911 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.
Originators of Power Scrubbing and Polishing Machines

Everything FINNELL for Floor Care

BRANCHES IN ALL PRINCIPAL CITIES

Naugatuck Butadiene-Styrene Latices

Leading name in Latex for the Textile Industry

Made in our own synthetic rubber plant, Naugatex® R-S latices are characterized by excellent mechanical stability, good color and superior aging. In general, their particle size is considerably smaller than that of natural rubber latex.

By varying the ratio of styrene to butadiene, the molecular weight of the polymer, the type of emulsifier system and the temperature of polymerization, Naugatuck chemists have given these Naugatex latices a variety of characteristics not possible in natural latex. The following specific types are in wide demand for pile fabric sizing, fiber binding and tufted carpet backing applications:

NAUGATEX 2000—A medium-solids, "hot" latex of about 50% styrene and of an intermediate Mooney viscosity. For fabric sizing and cotton carpet backing.

NAUGATEX 2002—Similar to 2000 except for higher solids and larger particle size. For fabric sizing and carpet backing.

NAUGATEX 2714—Medium-solids, high-styrene latex. For blending with natural or synthetic latex to give firmer hand, stronger tuft lock and better abrasion resistance.

NAUGATEX 2105—A high-solids, "cold" latex of about 25% styrene and a Mooney viscosity of 140. For fabric and carpet backing and for binding fibers.

NAUGATEX X-767—Similiar to 2105 but 50% styrene ratio raises tensile strength. High loading capacity makes it very desirable for textile and rug applications.

For more details, or for dependable technical assistance in the application of rubber latices, contact the branch office or compounding plant nearest you.

United States Rubber

Naugatuck Chemical Division

Naugatuck, Connecticut

BRANCHES: Akron • Boston • Chicago • Memphis • New York • Philadelphia • **Mfg.:** Naugatuck • Gastonia • Los Angeles • **CANADA:** Latex Div., Dominion Rubber Co., Ltd., Montreal • **Cable:** Rubexport, N. Y. Rubber Chemicals • Synthetic & Reclaimed Rubber • Plastics • Agricultural Chemicals • Latices

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You get

Totally NEW FABRIC EFFECTS

. . . plus Shrinkproofing

with the unique

RIGGS & LOMBARD COMPACTING MACHINE

Now you can command an extraordinary range of special effects — through new compacting methods which enhance the basic structure of goods in unprecedented fashion and *at the same time* shrinkproofs to commercial standards or better.

The R & L compacting machine, particularly designed to practice the new methods, excitingly transforms woven and non-woven fabrics and yarns of many types by mechanical methods — no chemicals! Nubby fabrics look nubbier, patterned weaves are accentuated with depth dimension added . . . and, after these mere beginnings, possibilities for further developments are practically unlimited. Yarns come up much loftier, for use in new and superior yarn-dyed fabrics.

This compacting machine handles a wide range of weights and types from very light to heavy fabrics such as carpeting, and a variety of yarn counts consisting of any fiber or blend. Reasonable in cost, and needing minimum floor space, it can be synchronized for in-line production at relatively high speeds. Replaces sponging process before tailoring on wool, worsted, blended fabrics — also achieves fine felting effects on worsteds and synthetic fabrics.

Riggs & Lombard collaborated in development of this machine for practicing the new compacting methods on woven and non-woven fabrics and yarns of many types. Now we are sole manufacturers and distributors of this machine in these fields, under licenses from the originators, Fabric Research Laboratories, Inc. Write for complete data. Find out how we helped engineer this new machine — and can engineer an installation that will assure *you* of immediately profitable new fabric effects.

RIGGS & LOMBARD, INC.

Foot of Suffolk Street, Lowell, Mass.

Agents: Paul A. Merriam Company, P. O. Box 86, Providence, R. I., Albert R. Breen, 80 E. Jackson Blvd., Chicago 4, Ill., Larry T. Nelson, 2824 S. W. Montgomery Drive, Portland, Ore., F. W. Warrington Co., 611 Johnston Bldg., Charlotte, N. C., A. Harold Zayotti, Jr., P. O. Box 125, Riverton, N. J., H. E. Mott Co., Limited, Brantford, Ontario, Canada.

Samples For Free Testing

We can arrange for test run on yarns or fabrics to show shrink-proofing and extraordinary new effects — or to have a representative call to show profit potential in your operation. Just write or phone — no obligation.

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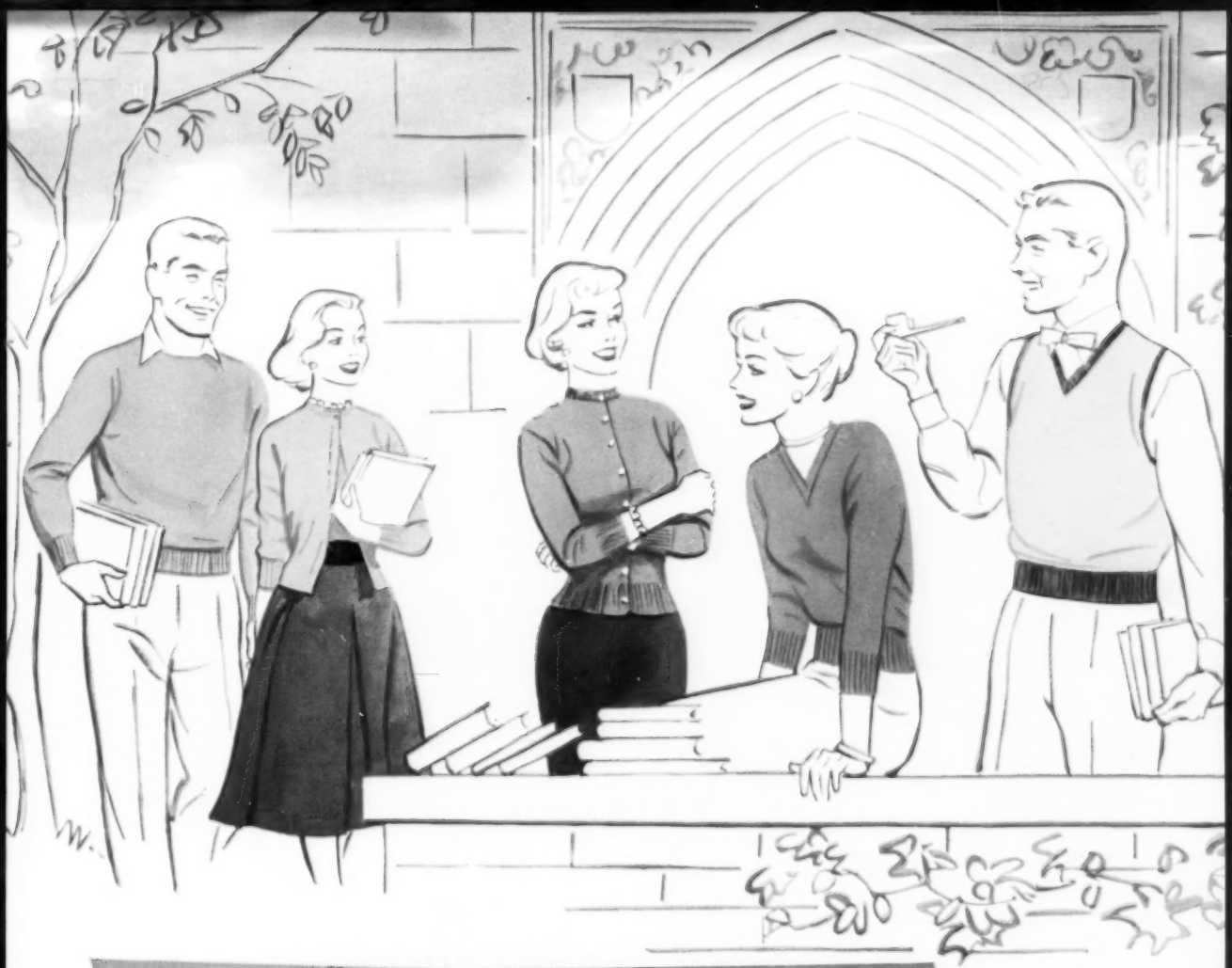

for ORLON*... GENACRYL dyes

Pioneer basic dyes of a new type for acrylic fibers

GENACRYL® dyestuffs are straight, water-soluble colorants differing from conventional basic dyes. They give bright, strong shades on Orlon acrylic fibers—characterized by light fastness fully adequate for the end-use requirements of Orlon and by very good fastness to drycleaning, perspiration, sublimation, rubbing, and washing with soap and soda at 160° F.

GENACRYL Yellow, Pink, Red, Oranges, and Blues yield level and well-penetrated dyeings, by a simple direct-dyeing procedure at temperatures near the boil. Because of exceptional brightness, a wide range of combination shades can be made from the GENACRYL dyes, and these can be readily supplemented by simultaneous application of selected ordinary basic dyes—without complication of the dyeing procedure.

The GENACRYL dyes have been perfected to meet your demands for coloring Orlon and other acrylic fibers, and particularly for Orlon-wool blends. Ease of application and great tinctorial value are important production benefits from their use. For further information, please call on our sales office nearest you, or write us direct.

*Acrylic fiber of E. I. du Pont de Nemours & Co. (Inc.)

From Research to Reality ...

gdc gaf

GENERAL DYESTUFF COMPANY

A SALES DIVISION OF

GENERAL ANILINE & FILM CORPORATION

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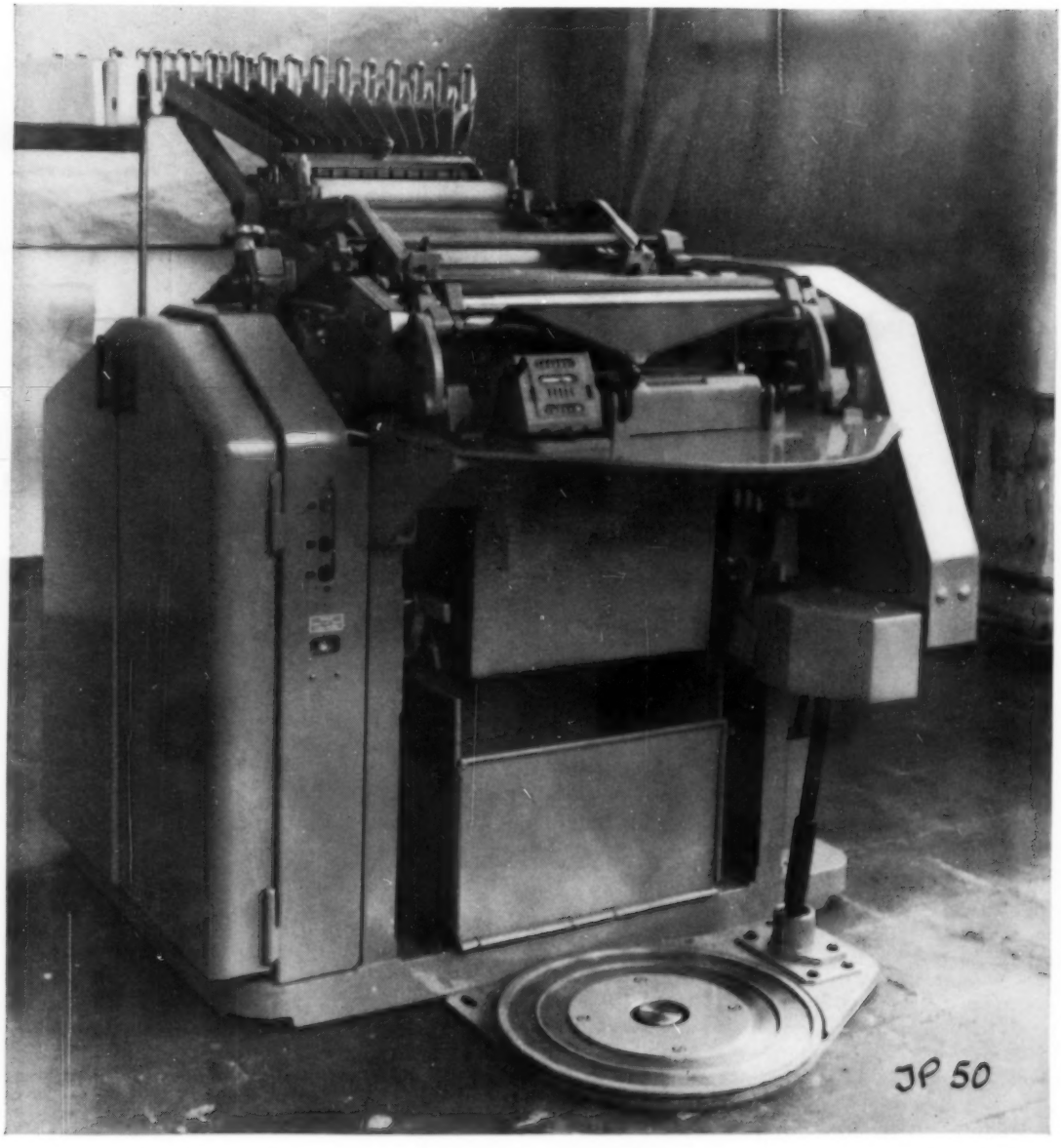
WORLD FAMOUS

SCHLUMBERGER COMB

for French-Type Worsted Mills



OUTSTANDING for ready accessibility of all operating parts (including cylindrical comb) and for remarkable cleanliness of product. Settings made quickly.

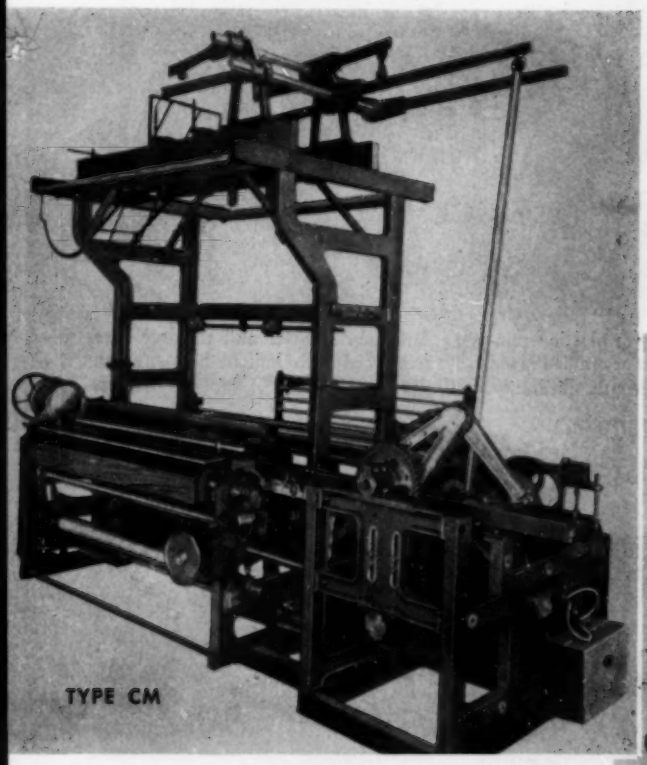
Also other worsted preparatory machinery

N. SCHLUMBERGER & C^IE

GUEBWILLER, ALSACE, FRANCE
Founded 1808

A·S·R *introduces—*

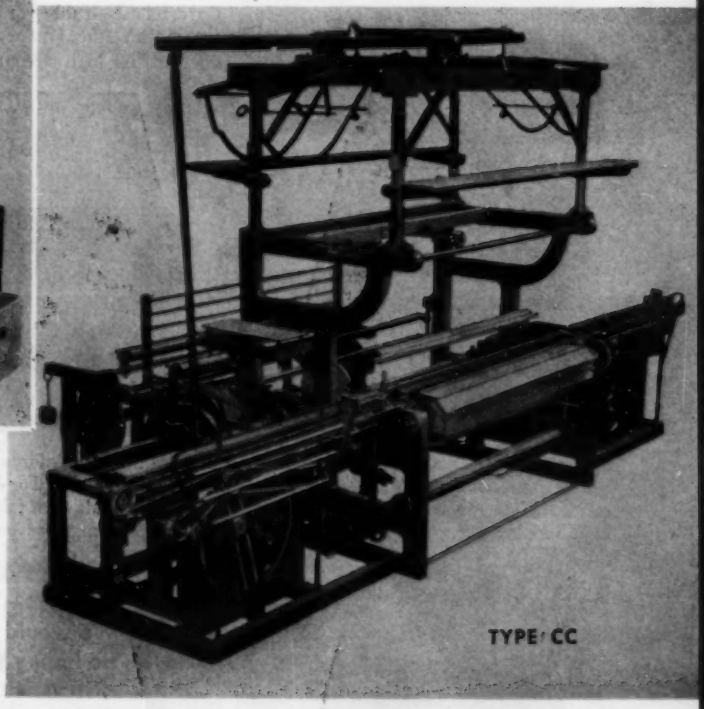
VAN DE WIELE WIRE LOOMS FOR MOQUETTE UPHOLSTERY FABRICS



TYPE CM

Smooth, vibrationless motion!

This Van de Wiele Loom weaves cut and uncut Moquette fabrics. It has a rugged construction with extra-strong frames. Double-range ball bearings are provided at all critical points. The wire motion is of the chain and lever differential type, with magnesium alloy reciprocating parts for high-speed, vibrationless operation. The 60" loom operates at 125 picks per minute. It is also possible to operate this single-wire motion for the insertion of a wire every pick.



TYPE CC

Extra-rugged frames!

This loom has a double height of wires with a wire motion on each side. Also weaves cut and uncut Moquette fabrics with a wire every pick. The wires can be introduced independently of each other. Here is a rugged loom with exceptionally strong frames, and it comes with double-range ball bearings. The 55" loom pictured operates at 90 picks per minute.

Forward and reverse jogging motion

BOTH TYPE CM AND CC LOOMS have Allen-Bradley stop and start, forward and reverse jogging motion and magnetically operated brake and bang-off motion. All nuts, bolts and screws in these looms are American National Standard. Van de Wiele Looms are distributed, installed and serviced in the United States and Canada solely by American Safety Razor Corp.

FOR COMPLETE DETAILS on these revolutionary looms, write to: Industrial Products Division, American Safety Razor Corporation, Staunton, Virginia.

PRECISION A·S·R PRODUCTS

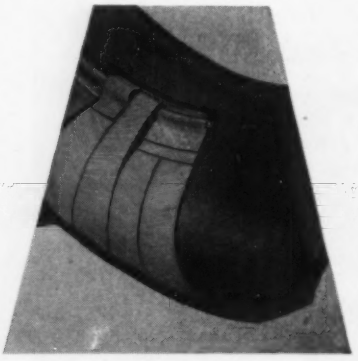
Industrial Products Division, **AMERICAN SAFETY RAZOR CORPORATION,** Staunton, Virginia

"Serving the Textile Industry for Over 30 Years"

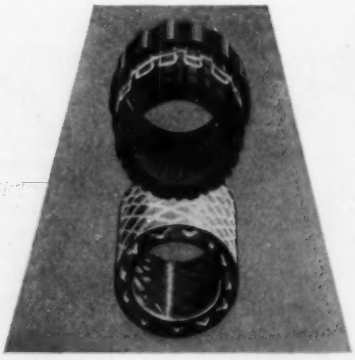
Wider range of high-strength yarns and fibers than any other brand

American Viscose Corporation, the nation's largest producer of rayon, manufactures a wider range of high-strength yarns and fibers than any other company.

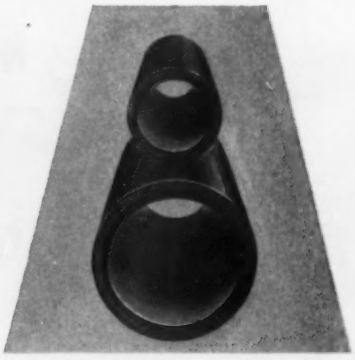
Here are a few of the hundreds of applications of AVISCO rayon that make industrial products stronger, more versatile, longer lasting:



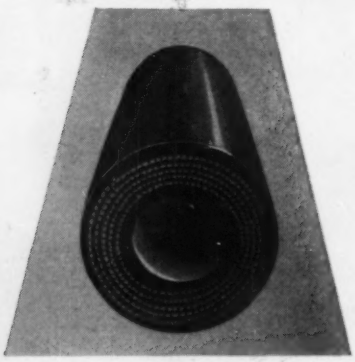
Rayon chafer fabric woven from continuous filament Rayflex yarn or high-strength Viscose 32-A staple yarns.



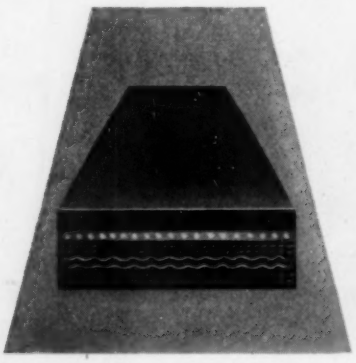
Garden hose—rubber or plastic—reinforced with either knit or braided rayon tire yarn for high strength, durability.



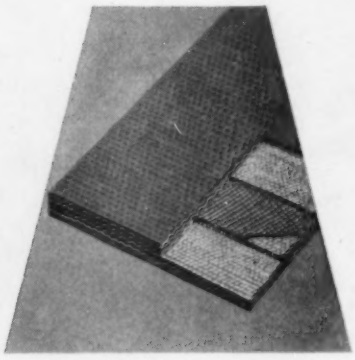
Automobile heater and radiator hose reinforced with knitted high-strength tire yarn.



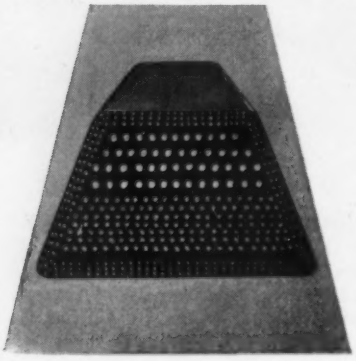
Spiral-wrapped hose made from fabric woven from Viscose 32-A high-strength staple. Wide range of uses wherever high bursting strength is required.



Conveyor belt reinforced with Super Rayflex rayon in cord or duck construction. Also made with fabric of Viscose 32-A high-strength rayon staple.



Heavy-duty power transmission belt with multiple plies of Super Rayflex for maximum strength and high operating efficiency.



V-belt, constructed of layers of tire fabric or individual cords.

We would be happy to discuss with you how you can use AVISCO rayon to strengthen your business.

American Viscose Corporation
350 Fifth Avenue
New York 1, N. Y.

AVISCO *is the trademark of American Viscose Corporation*

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THIS NEW AUTOMATIC TENSION DEVICE*

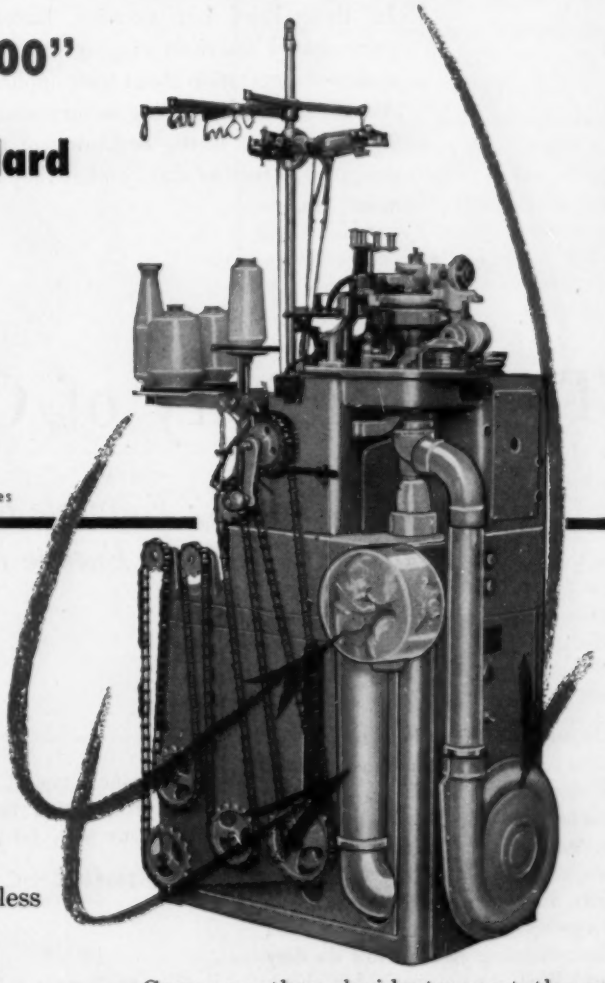
on the FIDELITY "400"

Sets the New Standard

in Seamfree

Stocking Quality!

*Patents Pending in United States and all Foreign Countries



Compare the unique features of the revolutionary new Fidelity Automatic Tension Device:

- Installation *does not* increase machine height!
- Completely air-operated— no mechanical arms or contrivances!
- Uniform tension is maintained regardless of knitting speed!
- Requires no resetting if machine is hand racked!
- Nylon retainer on transparent receptacle assures no-snag removal of stockings!
- Totally self-contained unit—easily installed without auxiliary air inlets!

Compare—then decide to meet the *new* standard of production quality *now*, with the superior new Fidelity Automatic Tension Device . . . designed for use with the electronically controlled Fidelity "400" and other makes of knitting machines. Write today for details . . . or visit our showrooms.

Designers and Builders of Intricate, Automatic Precision Machines

SINCE 1911

FIDELITY MACHINE COMPANY, INC.

3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

EXPORT DEPT.: 25 BEAVER STREET, NEW YORK 4, N.Y.

SOUTHERN SALES OFFICE: 607 PROVIDENT BUILDING, CHATTANOOGA, TENNESSEE.

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DOW

In their brief but exciting history, chelating agents have encountered reactions ranging from scoffs and disbelief to overzealous exaggeration about their application. But the air is clearing. Already they are serving as important tools in many industrial processes. This is the beginning of a series on chelating agents designed to further clarify what they are, what they will do—and won't do.

The Chemistry of Chelation: Part I

Chelation defined · Example of the reaction · Variety of applications · Future of chelating agents

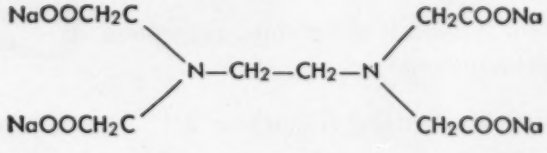
Polymerization of synthetic rubber controlled . . . soap kept white and sparkling on the dealer's shelf . . . textiles bleached and dyed with permanent uniform colors . . . pharmaceuticals stabilized. Unrelated reactions? Certainly. However, all are accomplished by a group of closely related chemicals called chelating agents. How do they work? Well, it's not magic, but chemistry—in a way, fairly basic chemistry. But let's begin at the beginning.

What Is Chelation?

Let's look at the word chelation. It is derived from the Greek word *Kelos* which means "claw." Simply stated, a chelate is a claw which holds a metallic ion inactive in solution. Chemically stated, chelation is a chemical reaction in which polyvalent metallic ions are reacted with organic reagents (chelating agents) to chemically inactivate these polyvalent metallic ions in the form of an extremely stable, water-soluble chelate.

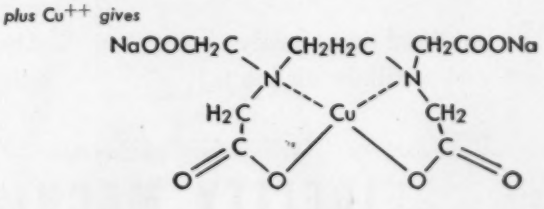
Typical Reaction

If we examine a typical reaction, the process of chelation becomes quite clear. Let us take, for example, the chemical structure of Versene®, one of the Dow chelating agents.



Versene

Now, if we place the Versene in a solution which contains free polyvalent ions of copper (Cu^{++}), the following is the result:



Versene Copper Chelate

The resultant compound is Versene copper chelate. The copper ion has become a member of an inner ring structure in the molecule. The result?

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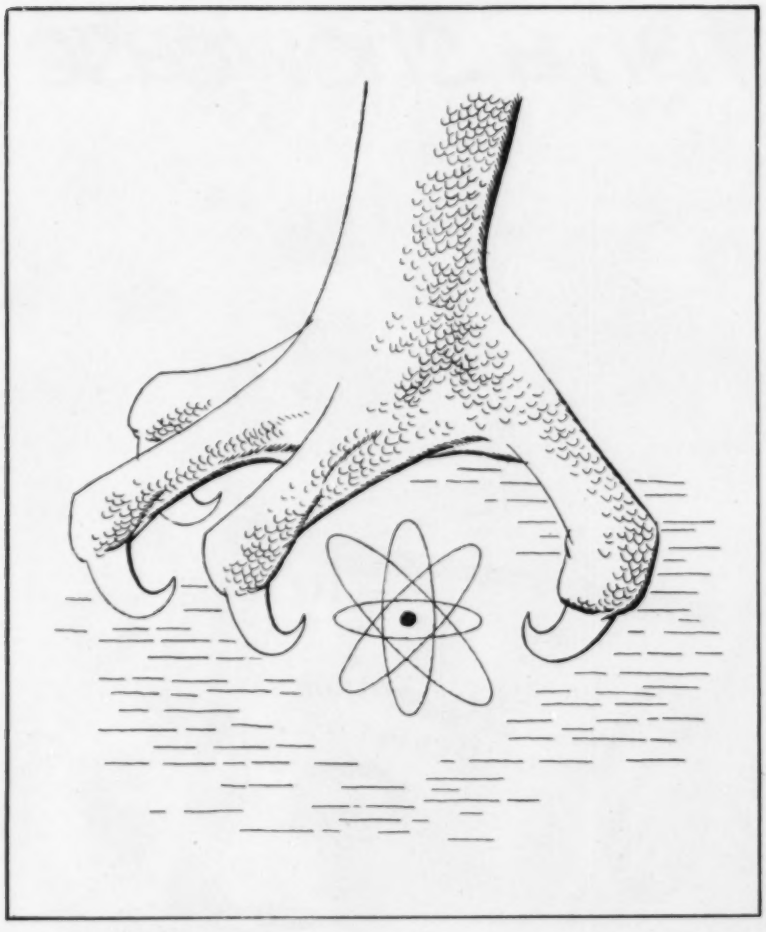

It is inactivated. It cannot react with soap to cause darkening and stain during storage.

It can't cause breakdown of pharmaceuticals. It can't cause any trouble anywhere because it is locked in the Versene claw. It will stay locked in unless it is desired to reverse the process. This reverse action is used in polymerization of synthetic rubber—ions of iron being released at a predetermined rate by the chelate.

Variety of Applications

The most important thing, however, is that this "claw" property of chelating agents such as Versene makes it possible to solve a multitude of processing problems in industry. They've been used in tanning leather and tenderizing peas.

They can descale boilers, soften water and cure acute lead poisoning. The number of current industrial and medical applications is large, but the potential in unexplored areas is enormous.

And the Future?

The future of these products will hinge on the imagination and insight of chemists and engineers, of production men and purchasing agents, in nearly every industry. Wherever metal contamination poses a problem or wherever controlled introduction of metal ions is desirable, these chemicals warrant investigation.

Versene and other Dow chelating agents won't solve them all. Chelation is not a panacea. It will work chemically in some areas—it will fail in others. However, it is Dow's intention to assist in every way in the uncovering of processes in which chelating agents can be profitably used. Inquiries on your company letterhead will be handled with dispatch. We will be pleased to provide information and technical assistance. Write to Technical Service and Development, Dpt. SC 900K-2, THE DOW CHEMICAL COMPANY, Midland, Michigan.

Additional topics in this series

PART II The Versene and Versenol® series of Dow chelating agents (what they are, strength and stability features—Versenol lower cost, less strength). Also—how chelating agents are specified (product performance versus chemical composition).

PART III Specific chelating agents for specific applications. Processing of textiles (strength and stability of Versene 100 for stabilization of hydrogen peroxide in bleaching ranges—Versene 100 strength and stability—Kier boiling; Versene S®, Versene T® for iron in presence of free caustic.

PART IV Further discussion of the use of chelating agents in the processing of textiles (production economies possible—weak versus strong chelation depending on process and material—improvement in appearance and durability of fabric).

you can depend on DOW CHEMICALS DOW

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Better than a showcase

TEXTILE PACKAGES
by SHELLMAR-BETNER

No need to put your textile products through the scramble and soiling hazards of showcase displays. You can protect them and give them outstanding brand identification at the same time by packaging them in Shellene® Crystal Clear Polyethylene film.

Textiles packaged in Shellene may be effectively displayed on a counter. Customers can handle the packages – see the product and feel the texture of the fabric – without unfolding or even touching it. This is possible because Shellene, by actual test, is the clearest film for textile packaging. It's soft and strong, too, and can be printed with your trademark and brand name in Shellmar-Betner's bright, attractive colors that sell. Call us today about the best in films and printing for textile packaging.

Remember!

we convert and print

- **POLYETHYLENE ROLLS AND BAGS**
- **POLY, CELLO, VINYL SHEET WRAPS**
- **SHELL-PLI® CARTON OVERWRAPS**
- **CELLO-POLY WRAPS**
- **"MYLAR"* polyester film BAGS AND SHEETS**

*DU PONT'S REGISTERED TRADEMARK

CONTINENTAL CAN COMPANY
SHELLMAR-BETNER DIVISION

QUALITY PRINTERS AND CONVERTERS OF FLEXIBLE PACKAGING MATERIALS

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NOPCO KNOWS SYNTHETICS!

has the experience, and the products, to make your synthetics better...

NOPCOSIZE® N

Warp Size especially made for Nylon

Satisfactory for producer's twist nylon.

The *only* PAA size which gives a pliable film. Permits increased size pick up which gives added protection without brittleness... yarn never gets stiff or brittle ...hence virtually no filament breakage.

Internally plasticized...more anti-static.

Yields exceptionally clean scoured fabrics.

NOPCOSIZE® D

Warp Size especially made for Dacron*

Gives a clean break at the split rods.

Does not foam in the quetsch pan.

No gumming or sticking of the sized yarn at 60-65% relative humidity and constant temperatures of 78°-80° F.

Easily prepared...easily removed with soap boil off.

One gallon of Nopcolube 55 wax emulsion per 50 gallons of size solution eliminates after-waxing.

NOPCOSTAT® ANTI-STATIC LUBRICANTS

4 different lubricants made to treat different synthetics

The Nopcostats are carefully designed to give not only (1) anti-static control, but also (2) fiber-to-metal lubrication and (3) fiber-to-fiber cohesion.

Every Nopcostat anti-static oil gives you all these properties plus outstanding spreadability, freedom from yellowing and rancidity, and complete scouring out.

Yes, Nopco has the products to give best results with each of your synthetic yarns. And the Nopco textile specialists will work closely with you to make sure you apply them best in *your* plant—since there are as many variables in plants as in synthetics. Write for technical data on Nopcosize N, Nopcosize D, and the Nopcostat Series.
Nopco Chemical Company, Harrison, N. J.

NOPCO

PLANTS: Harrison, N. J. • Cedartown, Ga. • Richmond, Calif. • London, Canada

*DuPont Reg. T. M.

TUFFER HAND CARDS

mean greater stripping efficiency

TUFFER Hand Cards mean faster, easier stripping... less effort and less arm strain. Their firm, yet flexible teeth strip smoothly and evenly . . . clean your rolls quickly.

Whether you use Midgley's Improved or Howard's Special, you're using the best when you use TUFFER Hand Cards.

Ask your nearest Howard Bros. representative for complete information.

Howard's Special Hand Stripping Card—Ruggedly constructed...pressed-steel handle... made of three-ply indestructible wood for strength and light weight.

Midgley's Improved Hand Stripping Card—Indestructible backs and handles... Steel clamps protect edges of the card and hold them securely to the back.

C-8

Manufacturers of Card Clothing for 90 years

1866-1956

HOWARD BROS.

WORCESTER 8, MASSACHUSETTS

Southern Plants: Atlanta, Ga., and Gastonia, N. C.

Direct Representation in Canada

TUFFER PRODUCTS Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing and Brushes • Top Flats re-covered and extra sets loaned at all Plants • Lickerins rewired at Southern Plants • Hand Stripping Cards

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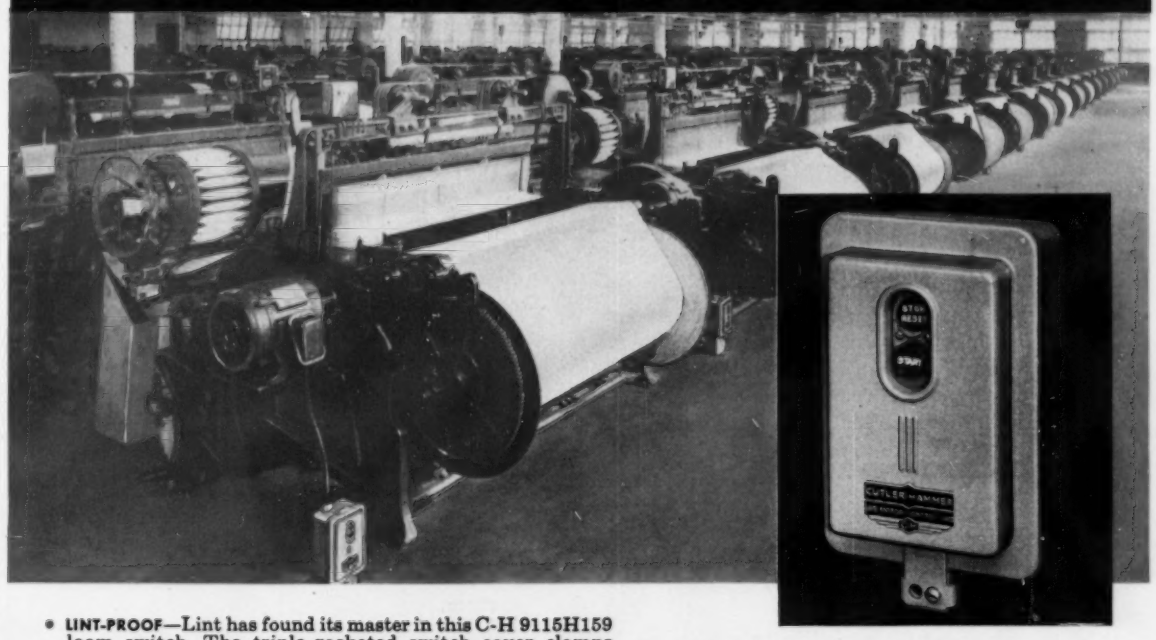
KEEP YOUR LOOMS WEAVING with the DEPENDABLE CUTLER-HAMMER LOOM SWITCH



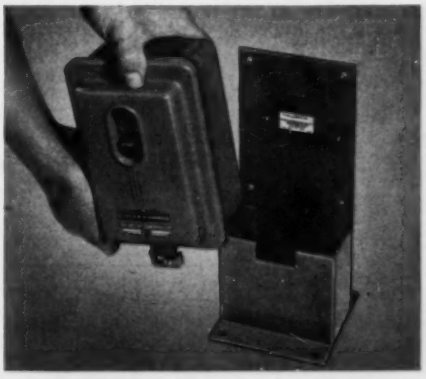
- **LINT-PROOF**—Lint has found its master in this C-H 9115H159 loom switch. The triple-gasketed switch cover clamps securely to the case and is drawn tight with a single captive cover screw.
- **DEPENDABLE OVERLOAD PROTECTION**—Every C-H loom switch features the famous Cutler-Hammer eutectic alloy overload protection. This free-tripping, tamper-proof overload protection will work the loom motor at top efficiency . . . safely. This amazing overload protection instantly senses a damaging overload, but eliminates nuisance tripping.
- **SHOCK & VIBRATION PROOF**—Inside and out, the rugged Cutler-Hammer Loom Switch is built to take it. The switch mechanism floats on live rubber bushings, sparing the mechanism from impact shocks and machine vibrations. A steel framework supports the all-steel operating mechanism . . . all enclosed in a tough, drawn steel case and cover.
- **EASIER INSTALLATION & INSPECTION**—Loosen a single captive cover screw to separate the cover from the case . . . the cover is out of the way and can't interfere while wiring. All terminals are out-front where you can get at them and are clearly marked for rapid identification and positive wiring. Heater coils are easily inserted and marked for accurate selection.
- **RESISTS CORROSION**—The Cutler-Hammer Loom Switch uses plated steel members and springs of stainless steel to resist corrosion. The case and cover are bonderized, assuring a lifetime of rust resistance even in the high temperature and humidity of the weave room.

Ask your Authorized Cutler-Hammer Distributor to show you this Cutler-Hammer Loom Switch. Compare it with any other and you too will agree, "For dependable loom performance—use C-H control."

CUTLER-HAMMER, Inc., 1457 St. Paul Avenue, Milwaukee 1, Wisconsin.

CUTLER-HAMMER
MOTOR CONTROL
C-H

- **LINT-PROOF**
- **DEPENDABLE OVERLOAD PROTECTION**
- **SHOCK & VIBRATION PROOF**
- **EASIER INSTALLATION & INSPECTION**
- **RESISTS CORROSION**
- **HIGH-BACK STEEL PEDESTAL**



- **HIGH-BACK STEEL PEDESTAL**—This high-back, steel pedestal provides a solid foundation for floor mounted loom switch . . . it supports the switch from top to bottom, not just at the bottom. Being made of steel (not cast iron) it won't crack off when accidentally struck by a warp truck or kicked.

For more data, write this page number on Reader-Service card. →

A Message to Management about DRYING EQUIPMENT

No. 6 in a Series
BALANCED DESIGN

INTRODUCTORY

In case you have not read the previous messages in this series, our purpose is to provide textile executives with certain signposts which point to the best in drying equipment. Properly designed and built dryers can reduce the cost of processing from fibre to finished fabric by a considerable amount. (Five dryings for a single fabric are not unusual.) The output of many expensive ranges is determined by the dryer. It must have the capacity it was designed for and maintain it hour after hour, day after day, year after year.

The signpost discussed in this message is "Balanced Design".

DESIGN FACTORS

The outstanding performance of Andrews and Goodrich Dryers and similar processing units for the textile industry is the result of Balanced Design, and Balanced Design can be achieved only if based on a thorough and complete knowledge of all the design factors. These include, among many others, fan types, efficiencies and arrangements, distribution ducts, nozzle velocities, spacing, shape and orifice size, type and arrangement of heating surface, as well as method of disposing and conveying goods through the unit. The design of each part must be adjusted to the design of all other parts.

Circulating fan horsepower is not a measure of the dryer's capacity nor can the capacity of a Curing Unit be determined by the number of yards of goods in it.

A good dryer that has balanced design and is properly constructed will:

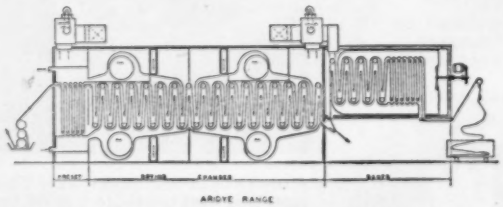
1. Give maximum production of first quality goods.
2. Require minimum operator's time.
3. Require minimum maintenance time.
4. Have high thermal efficiency.
5. Have high mechanical efficiency.
6. Be able to run a variety of fabrics and impart the desired characteristics to each of them.

HOW WE OBTAIN BALANCED DESIGN

Andrews and Goodrich are able to build dryers with Balanced Design because their design engineers have had many years of experience. They have available to them the results of years of laboratory and field research and can refer to hundreds of previous designs that gave outstandingly fine performance.

It is hard for a dryer purchaser to acquire enough information about dryers to judge their relative merits by design analysis or price comparison. Rather the plant's investment is likely to be most profitable if the choice is based on the dryer manufacturer's reputation and the performance of his product.

NOTE: A reprint of this and other "messages" will be mailed to you upon receipt of your name and title on your company letterhead.



A & G ROLLER DRYER
(longitudinal section)

For presetting, drying and baking. Produces the proper time-temperature reaction with minimum loss of tensile strength.

ANDREWS and GOODRICH, Inc.

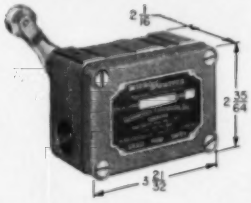
336 Adams Street, Boston (Dorchester), Mass.

Southern Representatives: **McSpadden & Scantland, Charlotte, N. C.**

MICRO precision switches

...THEIR USE IS A PRINCIPLE OF GOOD DESIGN

HONEYWELL



3 SWITCHES OPERATE ROTARY CUTTER WINDER

This MICRO SWITCH splash-proof switch is one of three compact, well-protected switches which control operation of a rotary cutter winder.

One switch prevents operation of the cutter frame if the new shell is not in position. A second switch, capable of handling high inrush current, starts the motor which drives the rotary cutters. The third, the ruggedly housed switch shown, operates the pneumatic cylinders to raise and lower the cutter frame.

36 SWITCHES SPEED AUTOMATIC OPERATION OF FABRIC WASHER

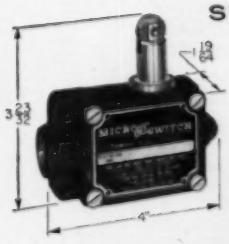
Four of these MICRO SWITCH units are located on each of nine tubs of a machine for continuous washing of all types of fabrics.

The switches are located at strategic points so that any tie-up, tangle or other malfunction will instantly stop the machine before any damage may occur.

Designer of the machine selected the MICRO SWITCH precision switches because:

1. Their action was positive and dependable.
2. Their enclosures were resistant to moisture.
3. They could operate with minimum switch plunger travel.

SWITCH CONTROLS COLOR MARKER FOR TRICOT



This roller plunger-actuated switch is mounted on a tricot knitter to operate a color dauber which marks warp in yards as it passes.

The switch is connected with the dauber mechanism by levers actuated by the timing cam. When the switch is actuated, current is sent through a solenoid, which pulls down the color dauber and makes a color mark about 4" long on the warp.

How these precise switches CUT PRODUCTION COSTS by making textile machinery MORE AUTOMATIC

Textile machinery, both new and presently in use, is rapidly being made more automatic, safer and more productive by the installation of MICRO SWITCH precision switches at strategic points.

Here are a few types of switches which have met specific problems in connection with textile machinery. They are examples of a wide range of switches with an almost inexhaustible variety of sizes, electrical characteristics, housings and actuators to meet textile needs.

Call nearest MICRO SWITCH branch for consultation

For competent advice on the proper switches to make your textile machinery more automatic, safer and more productive, call the nearest MICRO SWITCH branch office. MICRO SWITCH distributors, with complete stocks of a wide variety of switches, are located in key cities everywhere. Look in the Yellow Pages under "Switches, Electric."

Send for Catalog 83 for complete information on "Industrial Enclosed Switches."

MICRO SWITCH

A DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR COMPANY

In Canada, Leaside, Toronto 17, Ontario • FREEPORT, ILLINOIS

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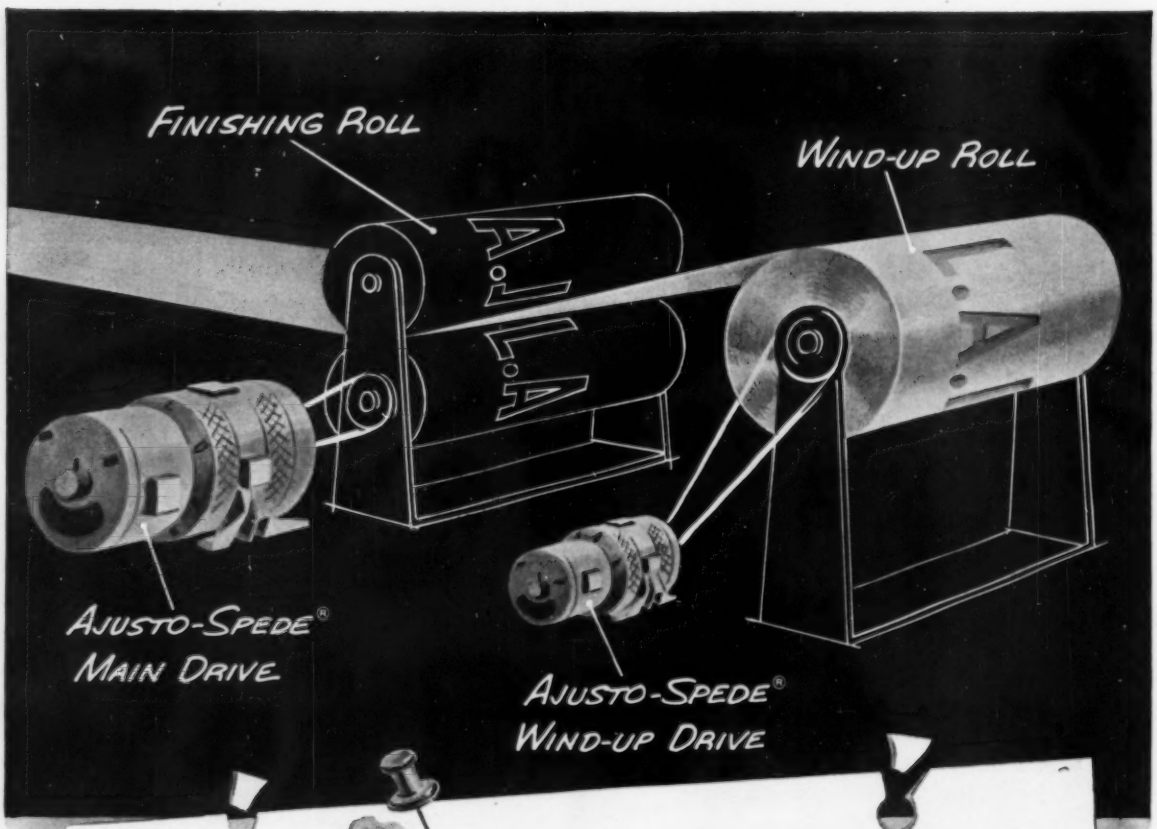


Do you have a Wind-up Problem?

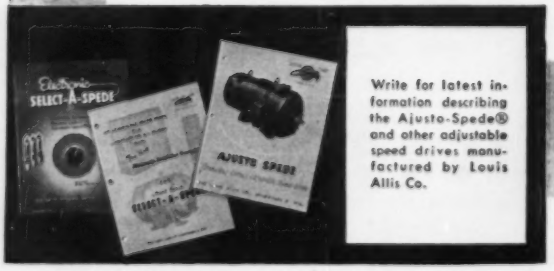
The Louis Allis Ajusto-Spede® Drive gives you the best answer

The Ajusto-Spede® drive has solved many difficult wind-up problems -- has successfully handled a wide range of materials from cigarette paper to steel. Just look at the versatility of this drive -- what it can do for you:

- Linear speed range from 100 to 2000 fpm.
- Roll build-up ratios up to 15:1.
- Tensions from 1/2 lb to 10 lbs per inch of width.

But that's not all. No dancer roll is required. An AC signal generator, mounted on the main drive, corrects for changes in linear speed. A special circuit provides inertia compensation during periods of acceleration or deceleration. Adjustable stalled tension is also provided.

Don't let your wind-up problems throw you. Consult your Louis Allis field engineer -- he has the drive and he also has engineering experience in applying these drives that can help you.



Write for latest information describing the Ajusto-Spede® and other adjustable speed drives manufactured by Louis Allis Co.

AS-102

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A LONG-TERM INVESTMENT IN SOUND ENGINEERING AND SKILLFUL STAINLESS STEEL FABRICATION

For more than a century, Rodney Hunt machines have helped the textile industry maintain high production and quality at a profit. Licensed under both Becco and DuPont patents, Rodney Hunt maintains a continuing program of research and development in collaboration with these and other companies to give the textile industry the benefit of the most modern processes and equipment.

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Dye Pads • Niptrol® Dye Pads
Agers • Pad Steam Dye Ranges
Tensitrol® Steamers
Tru-Shade® Combination Washing and Dyeing Kettles
Tru-Shade Sample Dye Kettles
Tru-Shade Dye Becks and Kettles
Carpet Dyeing Machines

BLEACHING

Bleaching Rangettes* (Becco & DuPont)
Bleaching Ranges (rope or open width)
Agers • Desize Ranges
J-Boxes (Becco & DuPont)
Saturators (rope or open width)
Standard Open Width Washers
Tensitrol Steamers
Tensitrol Washers (rope and open width)

WASHING

Standard Open Width Washers
Tensitrol Washers (rope and open width)
Slack Loop® Washers
Endless Felt Washers
Tru-Shade Combination Washers and Dyeing Kettles
Yankee Clipper® Washers
Tru-Shade Scouring Machines

FINISHING

Scutchers • Extractors
Niptrol Mangles • Tensitrol Steamers
Wring-Master® Squeeze Rolls

AUXILIARIES

Batchers
Compensators (rack or swing type)
Draw Reels • Entering Equipment
Folders • Scutchers
Poteyes • Roller Poteye Guides
Reels: round, hump, triangular, oval
Rolls: wood, metal, rubber, plastic, tube cast, chrome plated, special design
Tension Bars
Whirlwind® Sample Dryers
Special Machines
Latex Backing Machines
Stainless Steel Tanks
Wring-Master Squeezers

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Bulletin No. 54
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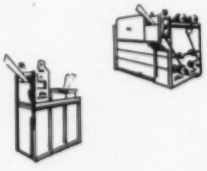
Niptrol Mangle

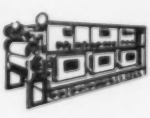
Tru-Shade Dye Beck



Bleaching Ranges and Rangettes

Tensitrol Washer

Tru-Shade Carpet Dyeing Machine



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The LONG-RANGE VIEW

Import Ceilings—a Lesson in Politics

On September 27, the textile industry took a giant step forward in post-World War II government and economic relationships. On that date, the Eisenhower Administration announced its acceptance of the textile industry's proposal of import restrictions on Japanese textiles.

Briefly, as outlined by Sherman Adams, assistant to the president, before the annual meeting of the Northern Textile Assn., here are the four main points of the new program:

1. Japanese imports of cotton goods will not exceed the imports of 1955.
2. Within this ceiling, subsidiary ceilings will be established on individual constructions where imports may cause undue hardship to any segment of the U. S. industry. (Particular attention will be given velveteens and ginghams, where "undue hardship" already exists.)
3. Imports will be distributed by quarters so far as practicable.
4. This arrangement will become effective January 1, 1957, and continue indefinitely but may be reviewed annually.

What It Means

As most textile men will remember, Japanese imports began to flood the market only after September 10, 1955—the date set by the give-the-market-away "negotiators" from the U. S. State Dept. and Tariff Commission at Geneva, Switzerland, early in 1955. Imports rolled in at a monthly rate equivalent to the annual rate in 1954.

However, the total imports of 1955, if distributed over 12 months, would not cause undue hardship. Therefore, U. S. textile men are willing to go along with that volume of imports.

Of equal importance are the ceilings on specific constructions—such as velveteens and ginghams—and the distribution of imports by quarters. These two principles guard against Japan wrecking small segments of the U. S. market and wrecking price structures during seasonal sales.

With these assurances, as beneficial to Japan as to the U. S., the U. S. textile industry feels a welcome return of optimism. The sense of uncertainty and fear for our own government that has hovered over us for two years is now dispelled. Long-range plans for new products, new plant and equipment, and new competitive activities can be taken up again with renewed confidence.

What Did It

However, it must be remembered that this whole program is only in the "agreement" stage. Robert T. Stevens of J. P. Stevens Co., speaking from the same platform only a few minutes after Sherman Adams at NTA, warned the Administration that time is short between September 27 and January 1 and that the textile-industry representatives will not rest until specific ceilings are firmly set.

No one seriously doubts that they will be set, but Mr. Stevens was certainly right to sound his warning. It is certainly right, too, for textile men to recognize why the Administration agreed to accept the principle of import ceilings.

On this page in August, we pointed out the political strength the textile industry mustered in the Senate in June. An import-quota amendment to the foreign-aid bill was defeated by only two votes. So close was the administration to a far-reaching setback that a conference with Sherman Adams "to solve the problem of curbing textile imports" was proposed. Mr. Adams's announcement of September 27 was the result.

It is proper that textile men see this victory, not as a hand-out from someone nor as a sentimental change of heart for an unwanted stepchild, but precisely as it is—a hard-won victory that came as a result of only one thing: a show of political strength.

J. M. Thomas

Nearly every competitive advantage starts with the machine

Study the technical superiorities and production economies of the *improved* "Reading 100". Watch it in action. Check its flexibility and smooth, high-speed operation. See the quality of its knitting. Then figure the arithmetic of this *improved* full-fashioned knitting machine and know what it can mean to you in higher quality and lower per-dozen costs.

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THE SHORTAGE OF SCIENTISTS AND ENGINEERS:

What Can Be Done About It?

There is no easy or quick way to overcome the shortage of scientists and engineers that has become a threat to our national security and economic progress. The solution can come only through diligent efforts extending over several years to bring the supply of technically trained people into balance with our needs. Meanwhile, the pressure of the shortage can be relieved if industry, government and education make better use of the limited number of scientists and engineers now available.

Earlier editorials in this series have discussed the dimensions of the shortage of technical manpower, its meaning for our national security and our economic well-being and the causes of the shortage. This final editorial will survey some of the measures that can be taken to overcome the shortage. Most of the proposals presented here have been suggested elsewhere. But in combination they appear to offer the best hope of an answer to this serious national problem.

Soviet Methods Not For U. S.

It is clear that no crash program, inspired by panic and designed indiscriminately to drive hordes of high school students into science and engineering, is suitable for the United States. Even if we adopted Soviet methods of channeling a large portion of our brightest young people into technical fields, it would be at least four years before results appeared in the volume of college graduates. And such an approach would do no credit to the American way of life.

Any crash program, whether it involved totalitarian methods or simply overselling the advantages of technical careers, would be objectionable for other reasons as well. It would jeopardize the quality of scientific and engineering training. It would put many young people in fields where they have little aptitude and deny them to other fields for which they are better equipped. And, if carried too far, it might even result in the overcrowding that was feared prematurely a few years ago.

The most important problems for the long run, as the preceding editorial in this series indicated, are in the area of education. Any real solution must reduce the loss of talented high school graduates who do not continue their education for financial reasons or because of lack of interest. Also, it must improve the quality of high school preparation in science and mathematics and, above all, relieve the critical shortage of teachers.

Basic Needs in Education

Substantial increases in salaries of teachers in most of the nation's school systems are essential if high school students are to receive adequate preparation for courses in science and engineering. Pay scales that have lagged behind rising living costs and salaries available in industry have placed great strain on even the most devoted teachers. There has been a sharp drop in the number of new graduates trained to teach science and mathematics, and of this smaller number many have decided not to follow careers in teaching.

Raising teachers' salaries to more realistic levels must be primarily the job of local school districts, aided by state governments. If, in face of rapid increases in school enrollments, local and state resources prove insufficient, then federal aid will have to be considered. Higher teachers' salaries, however financed, inevitably mean higher taxes. But without appreciable improvement soon, the quality of our entire educational system is in danger.

At the college level also, financial aid is needed to provide scholarships for promising students and to increase faculty salaries. (An earlier series of editorials dealt more fully with these problems, and business aid to higher educational institutions has been mounting at a gratifying rate.)

But not all the educational problems related to the shortage of scientists and engineers can be solved with money. Science and mathematics have steadily been de-emphasized as more youngsters have gone to high school for terminal education rather

How business is helping to relieve the shortage of technical manpower

Summary of a
Survey by McGraw-Hill Correspondents

Sponsoring summer study programs for high school teachers
Arranging cooperative work-and-study programs for students
Sponsoring college fellowships and scholarships in science and engineering
Paying tuition of employees taking science and engineering courses
Keeping college faculties abreast of new developments in industry
Hiring high school science teachers for summer and part-time work
Giving old, but usable, laboratory equipment to schools
Cooperating in high school science exhibits
Sponsoring regional science fairs
Sending speakers and training aids to schools
Opening plants for student tours
Analyzing jobs to relieve engineers and scientists of routine work

The McGraw-Hill Department of Economics will be glad to hear of any other ways business is helping relieve the shortage.

than for college preparation. This de-emphasis must be reversed.

Techniques of instruction, furthermore, can stand improvement at all levels of education. Professor E. P. Northrup of the University of Chicago observes: "In the past fifty years . . . there has been a revolutionary change in the character of mathematics, yet not a trace of this change is to be found in the curricula of all but a handful of secondary schools throughout the country." Colleges and universities may have to examine old fetishes about light teaching loads and small classes in order to make more efficient use of their faculties.

What Industry Can Do

Industry has the immediate problem of better utilization of available technical manpower and the long-range responsibility of helping increase our resources of trained people. Frantic recruiting practices and reckless bidding up of starting salaries—financed largely by government money for defense orders — are not the answer. There is need for earnest consideration of incentives for experienced scientists and engineers, who too often must look to sales or executive positions for adequate financial recognition.

Industry in many instances could make more efficient use of engineers and scientists by shifting work to technicians, clerical personnel and even machines. One company found that 15% of the time of an engineering design group was spent on routine jobs and that this valuable time could be saved by adding a technician and a clerical worker to the group.

Other potential sources of technical manpower could be tapped more extensively to relieve the shortage. Very few women have entered what has been traditionally a man's world. Negroes are only slowly gaining educational and employment opportunities in technical fields. And many experienced older men can still give useful service.

A Good Beginning

Much is being accomplished already in efforts to attract more young people into scientific and engineering careers. A summary of some of the things business is doing is presented above. Other notable contributions are being made by such organizations as the professional engineering and scientific societies (especially through their manpower commissions), the National Science Foundation, the National Research Council, the National Education Association, the National Merit Scholarship Foundation and the Thomas Alva Edison Foundation.

Results are beginning to appear in rising enrollments in engineering schools and technical institutes. Between 1951 and last year, according to McGraw-Hill's annual survey of technical institutes, enrollments in these schools rose from 46,000 to a record 67,000. Engineering enrollments rose in the same period from 166,000 to 243,000. A rising tide of graduates is already being made available to American industry.

This is a good beginning. But only with wider appreciation of the serious implications of the shortage of scientists and engineers and intensified efforts on the part of business, government and education to relieve the shortage can we hope to overcome this threat to our national security and economic well-being.

This is one of a series of editorials prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments of particular concern to the business and professional community served by our industrial and technical publications.

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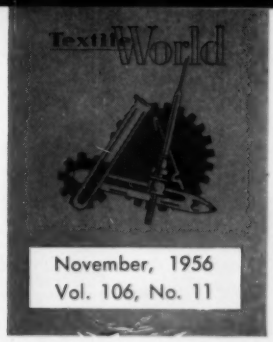


DIRECT-LABOR COST for Yarn Can Be Calculated Quickly

• Here are a few simple formulas for computing your direct-labor cost for drawing, roving, spinning, and twisting. By using the formulas, you can easily determine your cost.

By **JAMES M. COOPER,** Industrial Engineer

MANY YARN MILLS still pay their direct-labor workers on a per-frame or per-side basis. But this practices leaves the workers little chance for any extra incentive earnings unless they take on more frames or sides.

It is a big job for an overseer to compare the direct-labor cost per pound for various hank rovings and yarn numbers on this basis. Therefore few overseers have available time to check their cost.

However, more and more mills are paying hank rates for drawing, roving, spinning, and twisting; and it is simple for overseers to figure the comparative direct-labor cost. To make the computation, he must know only three things: (1) the hank rates, (2) hank roving or yarn number, and (3) deliveries or spindles per frame.

Common Formula Is the Base

A common formula for determining the pounds per frame hank is: divide the spindles or deliveries by the hank roving or yarn number.

By inverting the equation and dividing the hank roving or yarn number by the spindles per frame, we get the hanks per pound.

The method for figuring pounds per hank and direct-labor cost per pound are shown in the following formulas. For standard-cost purposes, it is necessary to increase the cost per pound by a subsequent waste factor. But for comparative labor cost, this increase is not necessary.

Formula for Drawing

Assume that one-process drawing is used, there are four deliveries per frame, each frame has a hank clock, and the sliver weighs 60 grains per yard.

Convert the grain sliver to hank roving:

$$\frac{7{,}000}{840 \times 60} = 0.139 \text{ HR}$$

For a production check, the pounds per hank times the hanks produced in a given time give the total pounds. Pounds per hank for a four-delivery frame are:

$$\frac{4 \text{ deliveries}}{0.139 \text{ HR}} = 28.8 \text{ lbs.}$$

Then 28.8 lbs. times the total hanks produced on all frames equals the total pounds delivered through drawing.

To determine the direct-labor cost per pound at an assumed rate per frame hank of $0.052, multiply the hanks per pound on a four-delivery frame times the hank rate:

$$\frac{0.139 \text{ HR} \times \$0.052}{4 \text{ deliveries}}$$

= 0.0018 tender cost per pound.

If two-process drawing is used, only the second-process frames require hank clocks and the tender's rate per hank is based on these frames. Thereby the hank rate and cost per pound are doubled on these frames.

Fly Frames

On 120-spindle 10x5 intermediates producing 1.50-hk. roving, the pounds per hank are determined by:

$$\frac{120 \text{ spindles}}{150 \text{ HR}} = 80.0 \text{ lbs.}$$

Then 80.0 times the total hanks produced on all frames making 1.50-hk. roving equals the total pounds delivered. Although there may be contraction from twist, the contraction is so slight that no allowance has to be made between hank roving above the rolls and on the bobbins.

At a tender's hank rate of $0.640, the direct-labor cost on the intermediates is figured by:

$$\frac{150 \text{ HR} \times \$0.640 \text{ per hank}}{120 \text{ spindles per frame}}$$

= $0.0080 cost per lb.

Spinning

When 20s yarn is spun on 264-spindle frames, the pounds per hank for production control are figured by:

$$\frac{264 \text{ spindles}}{20\text{s yarn}} = 13.20 \text{ lbs.}$$

Spinning frames are usually equipped with 890-yd. hank clocks instead of 840-yd. clocks. In hank calculations on an 890-yd. clock, the yarn number on the bobbins is used instead of the hank number above the rolls because the 6% longer hank offsets the yarn contraction from the

CONTINUED ON PAGE 171

GREENVILLE SHOW — 1956

- A bigger and better Southern Textile Exhibition was held at Greenville, S. C., Oct. 1-5, than ever before. About 325 exhibitors showed their products to an estimated 40,000 visitors. More major textile equipment was on display than at any Greenville Show since the war.

- On these pages, we present a roundup of the new machinery, equipment, and supplies on display.

The highlight of the 1956 Greenville Show was by all odds the return of confidence and optimism evident in the mill men attending the exhibition.

The show opened only four days after the announcement of firm ceilings on Japanese imports, to start Jan. 1, 1957; and almost every day while the show was in progress important wage raises were announced by large mill organizations. A general feeling that "happy days are here again" held.

Activity started early. Long-time observers noted more visitors and more interest in exhibits on the first day than on any first day in recent years. And as usual, activity increased —with some momentary slackening off in the afternoons after the World Series started—as the week went on.

Spot checks with exhibitors revealed that "mills are buying." And checks with mill men showed that nearly all of them found something on display that "we could use."

Two Complaints Made

As happens at every Greenville Show, two widespread complaints were made:

1. Many people would prefer that future Greenville shows be held in early November instead of October to avoid the hot weather always encountered in Greenville in October.

2. Exhibitors would like mill men to be supplied with identification tags by Textile Hall Corp. A great many people besides mill men attend the show, and much confusion could be avoided and time saved for both exhibitors and mill men if identification were made easier.

Opening, Picking, Carding

Two improved SRRL cleaners were featured. One machine has a self-acting cutoff that permits the cutoff plate to be set within 0.007 in. of the stripping cylinders. The other cleaner features wire-wound cylinders that operate at the same speed and in the same direction.

High-compression calender rolls for pickers that produce 85-lb. laps with 60% more yardage were shown.

A new method of taking the web off the doffer of a card by using a pair of rolls instead of the reciprocating comb created a lot of interest. The fibers are rolled off the doffer in parallel formation.

Almost every manufacturer of card coilers had an improved or larger coiler on display. The trend is toward ball bearings and suspended tube gears. Some of the coilers are specifically designed for synthetic fibers.

Because of the increased size and weight of the card cans, one manufacturer showed a three-wheel dolly that fits on the base of his coiler and lifts off with the can. Several cans can be hooked together and moved as a train.

Three card drives were featured. One is a "dry-fluid" drive that uses steel shot to transmit power, one has an improved clutch and high-torque motor, and the third one uses no clutch.

Opener for Fine Trash

An opening machine called the Pepper-Shaker for taking out fine trash was shown by Lummus Cotton Gin Co., Columbus, Ga.

The beater cylinders of the opener each has 360 short, round, blunt pins that work the cotton against grid rods. To avoid breaking up brittle trash instead of removing it, sharp points and angles are eliminated.

The Pepper-Shaker was used after a blending feeder. **(G-1)**

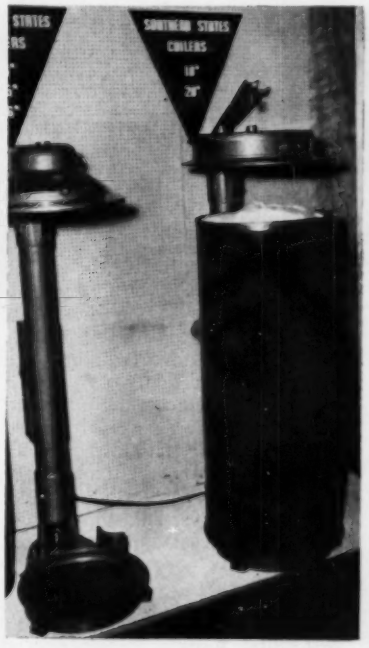
Card Drive

A card drive that operates with a standard motor was shown by T. B. Wood's Sons Co., Chambersburg, Pa. Special V-belts are used with a device designed to control slip.

The drive has no clutches, no speed reducers, and no gears. **(G-2)**

Card Clothing

Card clothing made of Swedish steel by A. B. Kardbeslag, Nörrkoping, Sweden, was shown by Oliver D. Landis, Charotte, N. C. Featured is a hardening process for the wire tips that increases the running time between grinds. The clothing is said to be capable of running up to one year without requiring regrinding. **(G-3)**



Card Coilers

Two card coilers were shown by Southern States Equipment Corp., Hampton, Ga.

The coiler shown on the left has ball bearings throughout except for the tube gear. All gearing has cut-steel teeth and the calender roll is ground and polished. The can table has a roller-chain drive and is insulated with felt. This coiler is available in 14-, 15-, and 16-in. diameters and will handle both 36- and 42-in. cans.

The coiler on the right, built especially for synthetics stock, has a tube that is off-center but straight down to keep the fiber from clogging. The coiler is made to supply 18- and 20-in. cans and has the same mechanical features as the coiler on the left. **(G-4)**

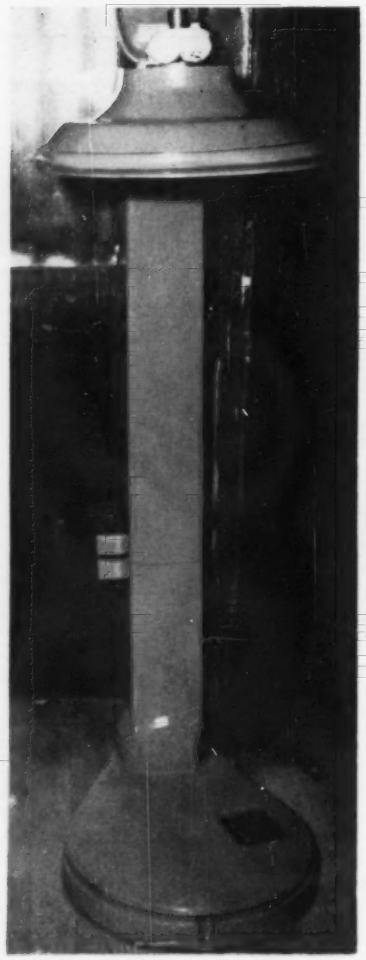
Improved SRRL Cleaner

An improved SRRL cleaner was shown by Cen-Tennial Cotton Gin Co., Columbus, Ga. The cleaner now has a self-acting cutoff (pointer) that permits the cutoff plate to be set to within 0.007 in. of the stripping cylinders. The doffers were redesigned to eliminate metal-to-metal contacts, and they are covered with a fire-retarding resilient material. The duct from the stripper roll was removed to stop chokes. **(G-5)**

Can Loader

A light truck with a series of rollers in the bottom makes easy work of loading and removing the large, heavy cans now becoming common at card deliveries.

Built by Sykes Foundry & Machine Co., Inc., Burlington, N. C., the truck is of welded construction and will carry four 14-in. cans. **(G-6)**



Card Coiler

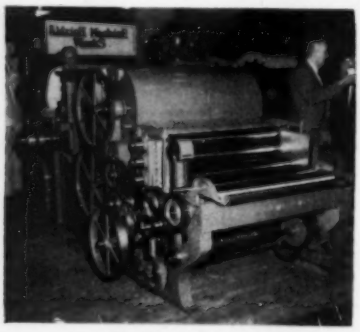
A card coiler that can put a 58-lb. lap in an 18x42-in. can was shown by Gossett Machine Works, Gastonia, N. C. Features include a suspended tube gear that eliminates oiling the track. The can wheel is driven by an oil-submerged worm gear and assembly that keeps cans from jumping. The base, sealed to keep out waste, is so rigid that no shims are needed for plumbing. (G-7)

Card Drive

A card drive with a 1½-hp. motor that brings the card to speed in 28 secs. without the use of a clutch was shown by Fairbanks, Morse & Co., Chicago, Ill. The axial air-gap motor sits on the floor flush against the card with its output shaft extending outward. The shaft does not extend beyond the space occupied by the average flat-belt drive. (G-8)

Card-Grinding Stand

B. S. Roy & Son Co., Worcester, Mass., showed a two-way adjusting ball-bearing stand for cylinder grinders for cotton and wool cards. The grinder sits in the ball-bearing mounting, and it results in a smoother operation and a longer life. The stand moves up and down and also in and out. A new sealed oil bath for grinder motions was also shown. (G-9)



Picker Improvements

Picker improvements shown by Aldrich Machine Works, Greenwood, S. C., included a chain drive that replaced the old gear drive for quieter operation, more drive flexibility, and closer control of draft.

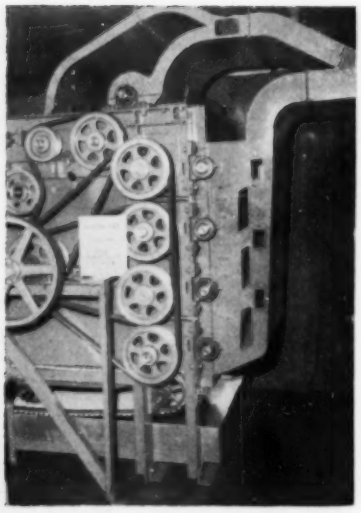
Other improvements are a pivoted roll to replace the shoes used to hold the calender rack gears in mesh with the spur gears on the cross shaft; adjustable jibs for mounting calender rolls; and improvements to bearings, gears, starting pedal, and stop motion. (G-10)

Card-Coiler Rolls

A hard, smooth plastic card-coiler roll guide with low-torque bearings for minimum friction was shown by Engineered Plastics, Inc., Gibsonville, N. C. The roll is said to even tensions, eliminate torn or snagged fibers, improve quality, and reduce downtime and waste. (G-11)

Card Clothing

Micr-O-Grind, a special card clothing for all fibers, was shown by Benjamin Booth Co., Philadelphia, Pa. The points of the wire are ground to form a needle point much sharper than the regular point. The sharp point is said to help reduce fiber loading and neps and to increase the time between stripping periods. (G-12)

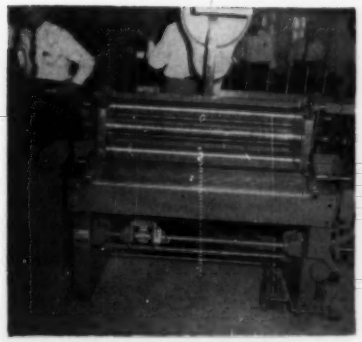


Lint-Cotton Opener

An SRRL cleaner that opens, blends, and cleans cotton in one operation was shown by Kirkman & Dixon Machinery Co., Greenwood, S. C. The machine has a heavy, welded-steel frame, ball bearings throughout, and wire-wound opening cylinders and doffers for lower maintenance costs. The cylinders operate at the same speed and in the same direction. Two sizes of cleaners are available. (G-13)

Card-Can Dolly

A three-wheel dolly that fits under large card cans was shown by Southern States Equipment Corp., Hampton, Ga. The dolly, which makes moving heavy cans easy, has a hook-and-eye arrangement so that several cans may be fastened together and moved at the same time. The device fits on the base of the coiler and is easily removed when the can is full. (G-14)



Picker Calender Rolls

High-compression calender rolls that can produce 85-lb. picker laps was shown by Saco-Lowell Shops, Boston, Mass. As much as 60% more yardage can be wound in the same over-all diameter as conventional picker laps.

The assembly can be applied to all S-L pickers equipped with a Model 5 calender section. The change-over includes four high-tensile-strength steel rolls, hardened cut-steel gears, a new leverage pressure system that almost doubles conventional pressures, and knock-off motion gears to compensate for the increased lap yardage. (G-15)

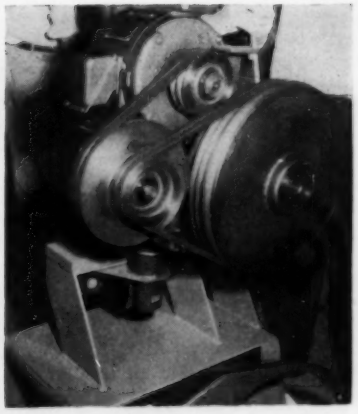
Fancy Rolls

Fancy rolls with aluminum heads and foam rubber on the clearers, manufactured by Dallas Textile Parts, Dallas, N. C., was shown by Richard A. Owings Co., Greenville, S. C. (G-16)

Dry-Fluid Card Drive

A "dry-fluid" card drive that starts cards smoothly, protects against overloading, and saves power was exhibited by Dodge Mfg. Corp., Mishawaka, Ind. The drive is built around the Flexidyne fluid drive that uses heat-treated steel shot instead of oil to transmit energy.

Flexidyne protects against excessive current draw during the starting period, eliminates expensive controls, and permits the use of a normal-torque motor. The card can be reversed for stripping. (G-17)



Card Drive

An improved card drive was shown by Southern States Equipment Corp., Hampton, Ga. Features are a V-belt drive, improved clutch, high-torque motor, starter, reversing switch, and ball bearings throughout. The sturdy, compact drive requires no more space than the conventional loose-pulley drive. Cover is off in this photo. (G-18)

Fiber Lubricant

A product that improves the carding and spinning of textile fibers was shown by Allied Producers & Supply Co., Athens, Ga.

Designed to be sprayed on the fiber at the early stages of processing, the product, called Apsco Silvertip, is a hygroscopic water-soluble material that aids in even moisture absorption and reduces static. (G-19)

CONTINUED ON PAGE 230

Drawing, Combing, Roving

High-speed drawing frames and conversion units attracted much attention. One frame was running 400 ft. per min. on a blend of 35% rayon and 65% combed cotton. Three more were running 250 to 300 ft. per min.

The drawing frames feature suction-cleaning systems, electric stop motions, and special drives. One frame has an electromagnetic clutch. All the frames have antifriction bearings.

A foreign drawing frame with an automatic can-changing mechanism created a lot of interest. A feature of this frame is an indexing head that can be set to put a predetermined amount of sliver in the can so that creeling may be done by sections.

The trend toward larger cans for drawing continues, with both machinery manufacturers and suppliers showing cans up to 18x42 ins.

One new comber that runs 125 nips per minute was shown. Features include an improved detaching-roll motion, self-cleaning top and bottom clearers, and a 15-in. coiler.

Nothing new in roving was exhibited except an improved control for one of the stop motions. The instrument has selenium photocells and can be operated by an unskilled person.

Roving Cans

A line of 18x42 and 16x42 roving cans was shown by Continental Diamond Fibre Co., Div. of Budd Co., Inc., Newark, Del. The cans are made of seamless vulcanized fibre and have a "porcelainized" finish inside. Tops are metal, roll, and swedge types. (G-20)

Large Roving Can

A 16-in. roving can was shown by Spaulding Fibre Co., Dover, N. H. The inside finish of the can is coated with a material that is tough, smooth, and impervious to chemicals. The coating does not become sticky when it is used with synthetic materials. (G-21)

Pneumastop Control

The Pneumastop control, with printed circuit, enclosed relays, and midget industrial tube, all mounted on a plug-in base, was shown by Pneumafil Corp., Charlotte, N. C. The scanner unit has selenium photocells that always stay in balance. (G-22)

Can-Changing Drawing Frame

The improved OM-S drawing frame with an automatic can-changing mechanism built into the head end was shown by Edward S. Rudnick, New Bedford, Mass. The frame makes packages for the OM-S sliver-spinning frame described elsewhere in this report.

The frame has an indexing head with change gears that put a predetermined amount of sliver in the can so that creeling can be done by sections. Other features include automatic lubrication, spring-loaded rolls, a weight-release handle, and pilot lamps for the five stop motions. (G-23)

High-Speed Drawing

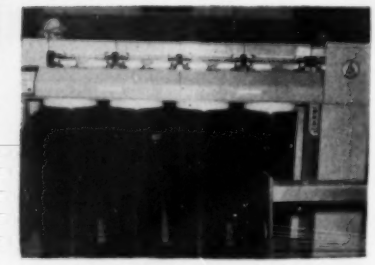
A drawing frame running 400 ft. per min. on a blend of 35% rayon and 65% combed cotton was shown by Ideal Industries, Inc., Bessemer City, N. C.

An electromagnetic clutch (arrow) and electric stop motion stop the rolls almost instantly in event of an end break. Line shaft, pulleys, and belting are eliminated by the clutch, which keeps vibration to a minimum.

Other features include Bahnson vacuum cleaning and a signal system that flashes different-colored lights for knock-offs. The creel is power driven and has ball-bearing lifts. A jog switch instead of a handle starts the machine. (G-24)

Sliver-Can Tape

A colored identification tape for sliver cans was shown by Permacel Tape Corp., New Brunswick, N. J. The tape comes in all widths, but ½ in. is the most popular. There are eight different colors, and the tape costs 66¢ per 60-yd. roll. A general textile tape for slashing with a flat-back paper was also shown. (G-25)



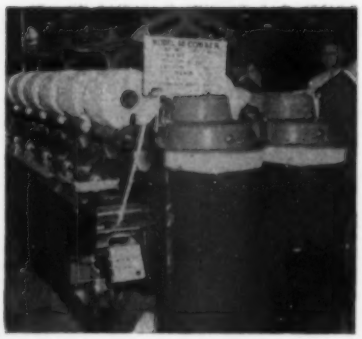
Drawing Frame

The Versa-Matic drawing frame that runs 250 to 300 ft. per min. was displayed by Saco-Lowell Shops, Boston, Mass. All rolls are driven independently, and there are five positions for the electric stop motion. Individual motor drive has a brake for quick stops. Shaw drafting elements are available in three-over-four or four-over-five arrangements. Antifriction bearings are used throughout, and the automatic self-cleaning top and bottom clearers have built-in static conductors. (G-26)

Fibre Roving Cans

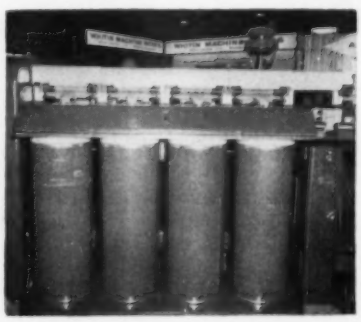
Seamless fibre roving cans were shown by National Vulcanized Fibre Co., Wilmington, Del. The cans are made with regular metal top, swedge-type metal top, or turned fibre top.

Bottom construction of the cans is galvanized metal with one-piece welded metal ring. The cans are made in sizes from 10 ins. up to and including 18 ins. dia. (G-27)



Improved Comber

The Model 56 comber was exhibited by Saco-Lowell Shops, Boston, Mass. The frame has a standard operating speed of 125 nips per minute. Features include a positive-pressure assembly for the nipper, a new epicyclic detaching-roll motion, self-cleaning top and bottom clearers, a 14- or 15-in. coiler with sensitive stop motion, and a new top-comb assembly and nipper frame. (G-28)



Drawing Frame

The Even-Draft drawing frame that runs 250 to 300 ft. per min. was shown by Whitin Machine Works, Whitinsville, Mass. Features include four-over-five drafting, Pneumafil cleaner units, over-arm weighting, no-twist can table, two independent four-delivery heads, antifriction bearings throughout, and vibrationproof construction. The frame can be used for all fibers to 3 ins. in length. (G-29)

Chrome-Plated Flyer

A new flyer for slubbers was shown by Watson & Desmond, Charlotte, N. C. The flyer is said to put 20% more roving on the package and place it under more-uniform tension. It has a chrome-plated, antirust finish and is made in Germany by Eugene Mier. (G-30)

CONTINUED ON PAGE 232

Spinning, Twisting, Winding

Eight new or improved drafting systems for spinning were shown, and most of them featured antifriction rolls and spring weighting. Two of the assemblies have individually connected units that can be removed without disturbing the remainder of the frame.

High speeds and long drafts were featured. One change-over was spinning 38s yarn with a front-roll speed of 162 rpm. and a spindle speed of 12,300 rpm.

One American and one foreign sliver-spinning frame were shown. The American machine, designed primarily for tufted-rug yarns, spins from 0.5s to 8s with a draft from 4 to 50. The foreign frame spins 12s to 120s and handles cotton and synthetic fiber to 3 ins. in staple length. Draft is to 700.

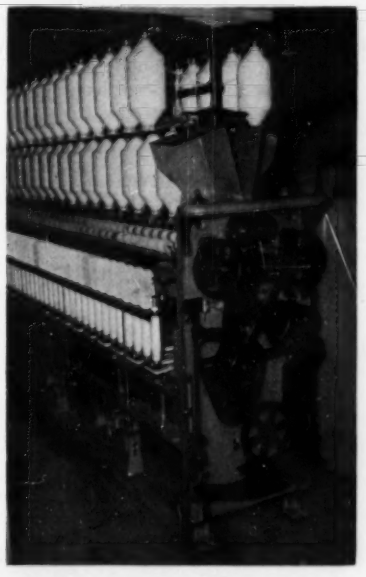
The trend towards open creels and vacuum-cleaning systems for drafting areas continues strong. Several new companies displayed equipment of this type. Central-collecting units were featured.

The trend of the last few years to increase the speed of twister frames has diminished. The trend now is to increase the versatility of this equipment.

Cotton, cotton-Dacron blends, and metallic yarns with cotton are now being twisted at high speed on double-deck uptwisters, which generally are used for synthetic yarns. The trend toward short-cut methods continues. The method of twisting stretch yarn directly on a cone is significant.

New oiling attachments were introduced on many twister frames to further the versatility of such machines. More attention is being given to the constant control of yarn tension and the control of oil placed on the yarn.

This versatility reached into filling-winding machines. Most machines can now deliver bobbins either into boxes or on pinboards. Devices to speed the work of operators, such as easier threading, are becoming more apparent. The trend toward higher speeds in filling winders is continuing.



Narrow Spinning Frame

A spinning frame 25 ins. wide that saves 25% floor space was shown by Roberts Co., Sanford, N. C.

The frames have Roberts' 34° double-apron drafting, ball-bearing spindles, built-in suction cleaning, umbrella creels, and 8-in. cylinders.

The head end has 30 grease-sealed ball bearings of one size; no plain bearings or studs are used. All gears in the head end are hardened and have one pitch, one bore, one width, and one key size. Two wrench sizes fit all shafts and tightening joints.

Drafts from 10 to 60 are available for 25s to 100s yarn, spun from cotton, synthetic staple, or blends. (G-31)

Top Arm for Spinning

The Tru-Set top-arm suspension and weighting system for Duo-Roth and Shaw drafting systems was shown by Saco-Lowell Shops, Boston, Mass.

The front and back top rolls are retained in their saddles by spring clips, which prevent them from falling out when the weight horn is raised. The Tru-Set suspension system is entirely self-contained. Maximum front-to-back roll setting for both drafting systems is 4¾ ins.

There are two top-apron and cage assemblies available for the Duo-Roth system: a narrow one to handle 1⅛-in. cotton staple and a wider version to accommodate synthetic fibers to 2 ins. in length. The Shaw drafting assembly will spin fibers from ⅞-in. cotton to 2-in. synthetic staple with no change of equipment. (G-32)

Fiber-Suction System

A fiber-suction system to remove broken yarn ends by vacuum was shown by Lendt Co., New York, N. Y., and W. D. Dodenhoff Co., Inc., Greenville, S. C.

The filter case is normally mounted to the end plate of a spinning frame but can be installed in other locations.

The system reduces broken ends by preventing doubling and breaking of adjacent ends. Yarn quality is improved because fly from the spinning operation is removed by the vacuum. The fluted roll is cleaned along its entire length. Fibers will not accumulate along the pressure roll. (G-33)

Lint Picker

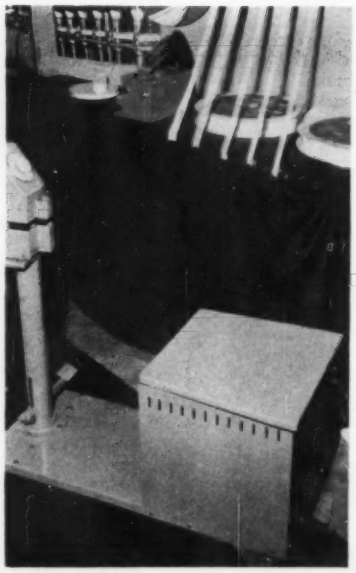
An air-operated spindle that revolves at 18,000 rpm. will remove lint from textile spinning and weaving equipment, according to the exhibitor, Oliver D. Landis, Inc., Charlotte, N. C. The device cleans the parts without requiring that they be removed from the machine. (G-34)

Roller-Bearing Spindle

A roller-bearing spindle made with an extra-small whorl diameter was shown by Edward S. Rudnick, New Bedford, Mass. The spindle is manufactured by Nippon Spindle Co., Amagasaki, Japan. (G-35)

Nylon Bonding Machine

A nylon-tape bonding machine with high heat input was shown by Oliver D. Landis, Inc., Charlotte, N. C. A thermometer is located on the top platen for the operator's convenience. The large platens hold heat so effectively that several tapes may be bonded while the machine is unplugged. Temperature is controlled by an adjustable thermostat. (G-36)



Bonding Machine

The Lectro Bond Machine for bonding nylon tapes, manufactured by Long Engineering Co., Winston-Salem, N. C., was shown by R. E. L. Holt, Jr., and Associates, Inc., Greensboro, N. C. The machine is battery-operated and completely mobile. A light indicates when the proper bonding temperature is reached and changes color when the heat leaves the bonding surfaces. The machine was shown in conjunction with nylon spinning and twisting tapes made by Burlington Industries. (G-37)

Creel and Bobbin Holder

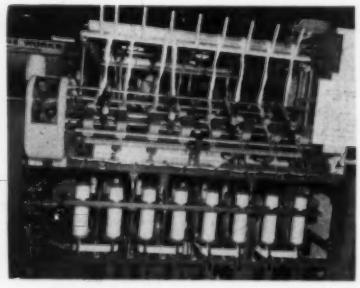
The Lint-Free creel and Tension-Rite bobbin holder were shown assembled by Pneumafil Corp., Charlotte, N. C. New features of the creel include an adjustable roving-rod hanger that prevents the supporting collars from touching the roving. Gull Wing cross supports make creeling and cleaning easy.

The Tension-Rite bobbin holder has a bearing that is well shielded from lint but is easily accessible if necessary. The holder maintains constant tension without the use of drag arms that might rough up roving. (G-38)

Tension Devices

The Carroll redraw tension was shown by Heany Industrial Ceramic Corp., New Haven, Conn. The tension was designed to redraw nylon directly from the pirn at speeds up to 550 yds. per min., and it holds tensions to 0.5 gram in a range up to about 10 grams.

The U. S. Textile tension was also shown with Heanium fingers and top pigtail. This device is suited for heavy yarns, and it won't damage the yarn if the yarn is misplaced in the fingers (G-39)



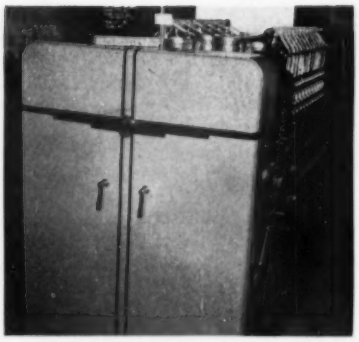
Sliver-Spinning Frame

The Monarch spinning frame that produces yarn from sliver was demonstrated by Whitin Machine Works, Whitinsville, Mass. The frame, especially designed for tufted-rug yarns, produces a large package of knotless coarse yarns ranging from 0.5s to 8s.

Two-apron drafting is used with a spinning-type cradle. Top rolls are weighted with a top-arm unit and precalibrated springs. Drafts from 4 to 50 are possible, with sliver weighing to 100 grains per yard. Manufactured in 7-in. gauge, the frame will accommodate ring sizes to 5½ ins. Traverse is 11 ins., and as much as 3.75 lbs. of yarn can be put on the bobbin. (G-40)

Twister-Spindle Stop Motion

The Magna-Stop, shown by Collins Bros. Machine Co., Pawtucket, R. I., is an electromagnetic make-and-break circuit incorporated in a twister spindle to act as a stop motion when an end breaks or runs out. When the unit is activated, the whorl is not depressed but the blade and bobbin are lifted up to disengage the bobbin from the drive while the whorl continues to turn at the same speed to assure constant speed on all four driven spindles on one tape. (G-41)



Sliver-Spinning Frame

An improved OM-S high-draft spinning frame that spins 12s to 120s direct from sliver was exhibited by Edward S. Rudnick, New Bedford, Mass.

An automatic clutch starts spindles a fraction of a second ahead of the drafting rolls, which frees the traveler and takes the kink out of the yarn. A little extra twist is added.

The automatic stop-motion and rail-lowering mechanism has pilot lights that show when the frame is ready for doffing. Automatic lubrication and ball-bearing top rolls are used. The frame makes a 10x2½ package. (G-42)

Spools

New items shown by Sonoco Products Co., Hartsville, S. C., included a Dytex tube for pastel colors, a plastic-and-paper spool for metallic yarn, a molded nylon-pirn cover, and a paper-and-plastic bobbin for glass yarn. (G-43)

Ring Twister

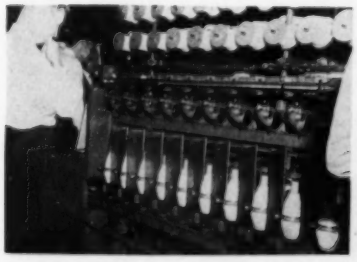
The ring twister shown by Collins Bros. Machine Co., Pawtucket, R. I., makes a package up to 12 lbs. The 10-in. traverse is provided by a screw arrangement that gives a smooth, positive motion to the ring rail. Three-, four-, and five-ply yarns were being made on 6½-in.-dia. rings. (G-44)

Package Drafting Unit

The Unit-Draft package unit designed to serve two spinning spindles was shown by Hartford Machine Screw Co., Hartford, Conn. The rolls have individual-gear drive, and no alignment is required when they are placed on the frame. A preset flexible coupling is used to hold the rolls in place. Each roll has individual spring weighting that takes all the strain off the bottom-roll-stand bearings. Aprons are easily replaced. (G-45)

Open Creel

An open creel designed to facilitate creeling and reduce cleaning was shown by Parks-Cramer Co., Fitchburg, Mass. Called SpenSaCreel, the creel has cast-aluminum cross arms especially contoured for maximum strength and minimum lint accumulation. Bobbin-holder tracks are made of extruded aluminum. (G-46)



Ring Twister

A Model 10 ring twister shown by Universal Winding Co., Providence, R. I., was twisting 70-den. two-ply Superloft yarn and winding it directly on a 10⅜-in. cone with a 3° 51′ taper.

The cone holds 1½ lbs. of yarn, and the yarn can be run directly to a knitting machine. The traverse is 6 ins., and a true filling wind allows the yarn to be drawn freely from the cone. The yarn runs through an oiling attachment. The size of the ring is 4¾ ins., and 1 tpi. was put in the yarn. (G-47)

Spindle Conversion Unit

An antifriction conversion unit for spindles that uses the old base was shown by Superior Bolster Co., Gastonia, N. C. The bottom of the spindle is faced, a self-aligning nylon seat for the bottom is put in, and the unit is screwed to the spindle. The top bearing can be either nylon or needle. (G-48)

Yarn Trays

Stainless-steel yarn trays designed to hold hank yarn while it is being set in autoclaves were shown by Sterling Engineering & Mfg. Co., Wilkes-Barre, Pa. The trays are available with either mesh or perforated bottoms. (G-49)

Antifriction Top Rolls

Top rolls for spinning and roving frames were shown by Progressive Engineering, Inc., Rockland, Mass.

Nothing turns but the bosses, eliminating wear on cap bars, saddles, and cradles. The rolls are available for all makes of frames and can be installed without any frame changes. (G-50)

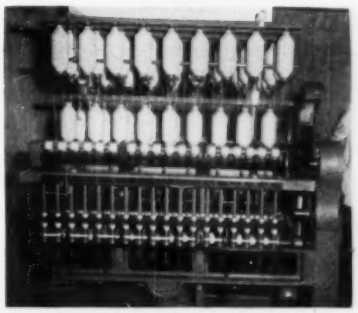
Bobbin Conveyor

An automatic conveyor system for handling boxes of empty and full bobbins between the spooler and spinning rooms was shown by Gower Mfg. Co., Engineered Products Div., Greenville, S. C.

The system consists of a roller gravity-feed conveyor to carry the boxes of bobbins to an automatic elevator, which lifts the boxes between floors. A limit switch starts and stops the elevator. A counter counts the boxes as they enter the elevator. (G-171)

Automatic Quiller

A standard automatic quiller, shown by Abbott Machine Co., Greenville, S. C., was fitted with a Draper magazine battery. Quills with correct bunches are automatically detected, and they drop into the filling box. Quills made without bunches are dropped into a chute that delivers them to a box under the frame. (G-51)



Drafting System

The Tru-Draft drafting system that permits drafts up to 50 was exhibited by Bouligny Co., Charlotte, N. C. The company claims that there is no build-up of drag, yarn is more uniform, bearing replacement cost is low, and the rolls offer no buffing problems.

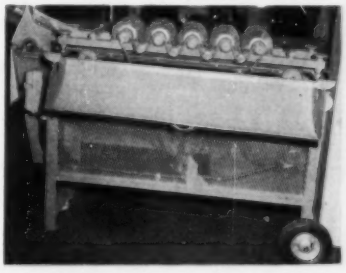
The frame on display was running with a front-roll speed of 162 rpm. and a spindle speed of 12,300 rpm. Doubled 2.5-hk. roving was being spun into 48s carded yarn.

An open creel, with baked enamel finish, was shown in conjunction with the drafting system. (G-52)

Bondable Spinning Tape

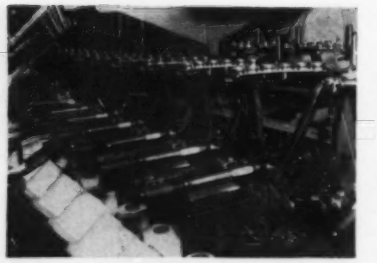
Its Burnylbond brand of bondable spinning tapes was shown by Burlington Narrow Fabrics, South Hill, Va.

A heat bond can be made on these tapes in a matter of seconds that make them endless. There is no distortion of the tapes at the point of splicing. (G-53)



Roll Cleaner

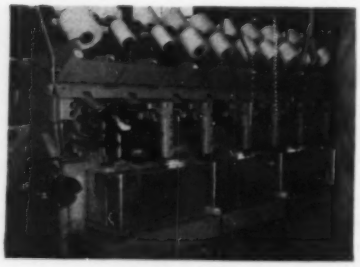
A roll cleaner for cleaning and burnishing middle top needle-bearing knurled rolls was shown by Kirkman & Dixon Machinery Co., Greenwood, S. C. Steel brushes clean 125 rolls in 10 to 12 mins. The machine can be adjusted for processing different-length rolls and is portable. (G-54)



Automatic Quiller

Abbott Machine Co., Inc., Greenville, S. C., showed the Model 11 automatic quiller winding 150-den. acetate yarn at 10,400 rpm. spindle speed. Several modifications have been made to the lubricating system and traverse guide. The brushes are now enclosed, and there are two fuses for each head.

To maintain an even tension on the yarn, there is a compensation tension consisting of six tension disks arranged so that one pair of disks at a time opens to let knots through. (G-55)



Filling Winder

The filling winder shown by Scharer Textile Machine Works, Erlenbach-Zurich, Switzerland, was running at 11,000-rpm. spindle speed on 15s cotton. The winder has been equipped with a larger hopper and a new threading device. Any type of mill boxes can be used on the machine. When the boxes are full, they are pushed out for easy changing. (G-56)

Yarn-Number Scale

A Shadograph scale that determines yarn number was displayed by Exact Weight Scale Co., Columbus, Ohio. The scale is not affected by vibration, and no leveling is needed. Direct-reading scale provides visual chart for reading yarn numbers without calculations. (G-57)

Dual-Apron Drafting

A dual-apron drafting system that eliminates surface lubrication and keeps friction to a minimum was shown by Cole Engineering Corp., Columbus, Ga. The new system, called Rusco, has no cradles or front-line nebs; rolls are aligned from the middle-line nebs. The saddle has a single enclosed adjustment that controls the ratio of weight on the three lines. Spring-weighting and a semi-automatic stirrup latch are built into the saddle. (G-58)

Automatic Quiller

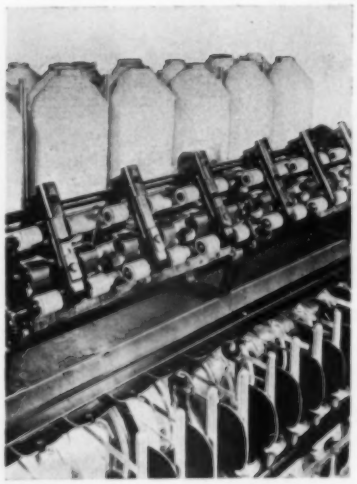
The automatic high-speed quiller shown by W. Schlafhorst & Co., M. Gladbach, Germany, was fitted with an individual pinboard attachment. Empty boards are inserted at the front of the machine and are removed at the rear, and 144 pins can be placed under one winding head. Full bobbins are placed on the pinboards in the same sequence as they are wound from the supply package. The winder was running 70- and 100-den. rayon, nylon, and Dacron at 11,000 rpm. (G-59)

Sapphire Guides

A new method of firing sapphire to porcelain used to make thread guides was shown by Linde Air Products Co., Div. of Union Carbide & Carbon Corp. Sapphires are put in the porcelain at the point of wear. (G-60)

Ball-Bearing Spindle

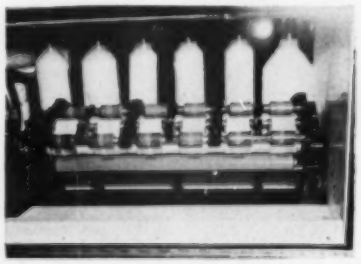
A ball-bearing spindle with a one-piece base that has to be greased only once in five years was exhibited by Paul Stewart Machine Co., Gastonia, N. C. The bearings are cushioned with neoprene. (G-61)



Improved Spinning Change-Over

An improved spinning change-over was shown by Product Sales, Inc., Whitman, Mass. Individually connected roll sections permit the removal of any section without disturbing the remainder of the frame and eliminate the need for a substitute apron after bottom-apron breakage. Realignment of the bottom rolls is not necessary because of the flexing-roll coupling. The change-over is used in conjunction with Clean-Align saddle assemblies.

Head-end draft gearing has ball bearings, and the gears can be changed without concern over torque. Sureweight spring weighting is used. A bottom-supported creel, which can be used on any type of spinning, is available. (G-62)



Antistatic Cots and Aprons

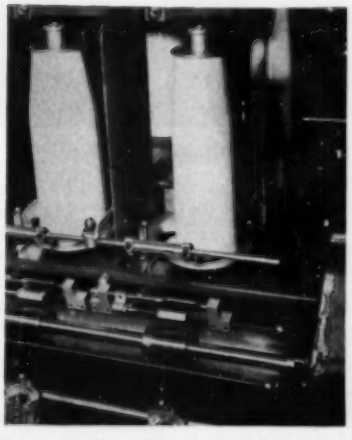
Cots and aprons for spinning frames were featured by Dayton Rubber Co., Dayton, Ohio. They are designed to operate under any conditions of humidity and have a high coefficient of friction that permits high drafting. The cots and aprons do not develop static and are lint-free in operation. (G-63)

Suction Cleaners

The Thoma cleaner was demonstrated on a Saco-Lowell frame by Thoma Co., Spartanburg, S. C. The aluminum-alloy tubes under the front rolls are easily removed by releasing a spring, and they are pulled out of the rubber socket in the central duct. The cleaner is under the front rolls behind the suction tube. The waste box has a transparent front. (G-64)

Thread Guides

American Lava Corp., Chattanooga, Tenn., showed the new Al-Si-Mag thread-guide material 614, which has high-content aluminum oxide fired at a high temperature to 9 plus on Mohs' scale. The new thread guides are designed in all styles. They are highly resistant to wear and resist chipping and fracture. (G-65)



Vertical Spooler

A high-speed vertical spooler was shown by U. S. Textile Machine Co., Scranton, Pa., preparing 70-den. Ban-Lon yarn for downtwisting. An oiling device compensates for the amount of oil put on the yarn. As the bobbin builds up, a lever moves on the yarn and changes the angle of the oil roller over the oil bath to keep the oil supply constant. (G-66)

Twister Spools

Twister spools machined to 0.003 to 0.005 in accuracy were displayed by Akron Spool Mfg. Co., Cuyahoga Falls, Ohio. They run to 6- to 8-in. grains of perfect balance without a balancing operation. Spools made with brass bushing and steel-tube centers were also shown. (G-67)

Yarn Conditioner

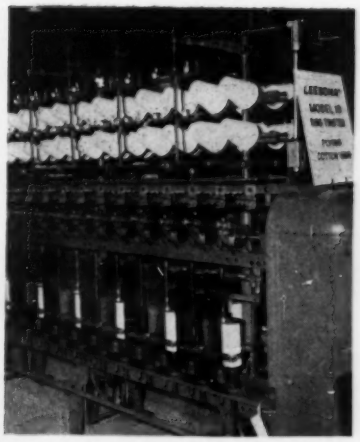
A yarn-conditioning unit made of stainless steel was shown by Mona Industries, Paterson, N. J. The machine is equipped with a feeding unit and will condition yarn on bobbins continuously. By feeding manually, larger packages can be handled.

The conditioning action is obtained by spraying the yarn with water containing a penetrant that sets the twist and lubricates the yarn. (G-68)

Spinning Tapes

Benjamin Booth Co., Philadelphia, Pa., showed its Supr-O-Band banding for spindle drives on twisting, roving, and spinning frames and Supr-O-Tape condenser tape for wool cards.

Supr-O-Band can be sewed, cemented, or fashioned by belt hooks and rivets. Supr-O-Tape requires no oil, and the surface does not crack. Two kinds are available—neoprene for normal conditions and Hy-Car where excess or strong oils are a problem. (G-69)



Ring Twisters

Two Model 10 ring twisters were demonstrated by Universal Winding Co., Providence, R. I.

One frame was twisting 70-den. Superloft and Ban-Lon stretch yarn from an over-end supply and winding the yarn directly on a cone at a spindle speed of 2,800 rpm. The cone is about 10 ins. high, and the yarn can be knitted directly off this package.

The traverse is 6 ins., and the wind is a cone filling wind so that the yarn is always drawn from the top. Oiling attachments lubricate the yarn during this operation.

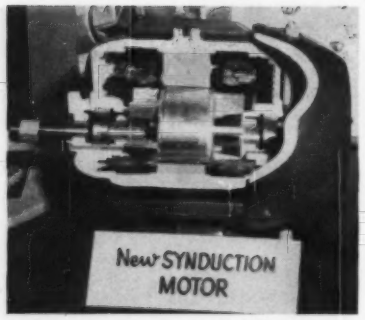
The second twister displayed a new high-speed system for twisting cotton yarn. The initial twist of 4 tpi. was inserted in two ends of 60s cotton-Dacron blend and in two ends of 80s cotton. Final twist was inserted in the yarn on Unirail uptwisters at 10,500 rpm. (G-70)

Endless Clearer Belts

Clearer belts made with a cotton warp and wool filling were introduced by Edward H. Best & Co., Boston, Mass. The 800 series endless belts are an addition to the Knoxall line of industrial fabrics. (G-71)

Thread Guides

Textalox, a new ceramic shown by Mitchell-Bissell Co., Trenton, N. J., is a homogenous aluminum oxide developed especially for synthetic fibers. The surfaces are polished to a smooth finish, and all patterns of thread guides are made. (G-72)



Induction Motor

A synchronous-speed motor for winding operations on synthetic-fiber yarn was shown by Allis-Chalmers Mfg. Co., Milwaukee, Wis. The speed is adjustable over a 7-to-1 range. Speed adjustment is obtained by changing frequency.

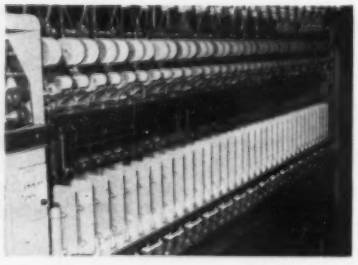
The motor does not require d.c. excitation; across-the-line starters can be used for starting, stopping, and protecting the motor.

Components are similar to standard squirrel-cage motors, and therefore maintenance is simplified.(G-73)

Spinning Cots

Spinning cots for synthetic fibers were shown by Armstrong Cork Co., Lancaster, Pa. They are said to have great antistatic properties and therefore increased lap resistance.

The cots are available in four classifications for: flat clearers, comber detaching rolls, revolving clearers, and places where softer than standard roll covering is desired. (G-74)



Drafting Assembly for Spinning

The SG-3J drafting assembly for synthetic fibers up to 3 ins. long was shown by Saco-Lowell Shops, Boston, Mass. The system consists of three lines of steel bottom rolls mounted on antifriction bearings that create a two-zone drafting area in conjunction with the front and back top rolls. A Duo-Roth top apron is used. The system is for the Gwaltney frame.(G-75)

Bobbin Truck

The bobbin truck shown by Spaulding Fibre Co., Dover, N. H., is of Vulcaneer-laminated fibre and wood and has a floating bottom. The new material remains flatter and allows the bottom of the truck to rise and fall without catching on the sides of the truck. (G-76)

Variable-Speed Drive

A variable-pitch-sheave drive for twisters was shown by T. B. Wood's Sons Co., Chambersburg, Pa. The drives hold the speed within any specified range. The belts are said to have been operating on cotton twisters for two years with no indication of belt wear. (G-77)

Dump Truck and Trough

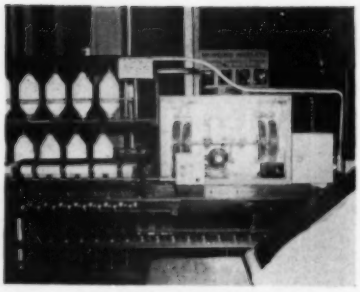
A warp dump truck and spooler trough was shown by Fisher Mfg. Co., Hartwell, Ga.

The roller-equipped truck enables boxes to be loaded from storage without lifting. The truck has a built-in lifting device with a hydraulic piston that holds the box at the proper height for dumping. One operator is required.

The trough is mounted above the ducts so that it may be pulled out for easy cleaning of the spooler and trough. A floating bottom keeps yarn at hand level and allows easier loading. The trough doubles storage capacity at the spooler. (G-78)

Bobbin Hanger

A bobbin hanger with positive latch was shown by Hartford Machine Screw Co., Hartford, Conn. The hanger is said to make creeling easier and faster, and it requires little upkeep. Free-running ball-bearing construction is used. (G-79)

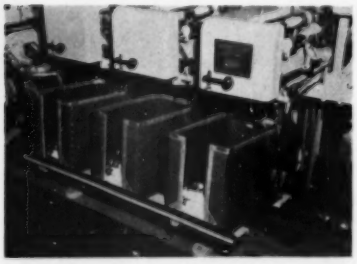


Slub Attachment

An electrically controlled slub attachment for spinning frames was shown by Sykes Foundry & Machine Co., Inc., Burlington, N. C.

The control units consist of a production timer that has four pattern wheels, each controlling a series of spinning frames, and a master control unit that is actuated by the pattern wheels. The master control in turn operates the slubbing attachment.

One of the features claimed for the control systems is that patterns do not repeat; so the yarn will not give geometrical patterns in the fabric. (G-80)

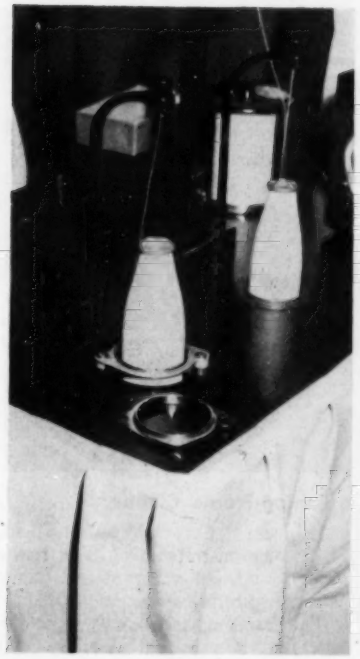


Automatic Winder

The Model 66 automatic filling winder, shown by Foster Machine Co., Westfield, Mass., has several new features including a new box stacker. The bobbin stacker packs the quills in from the bottom of the box and stacks them neatly, ready to be put directly on the loom.

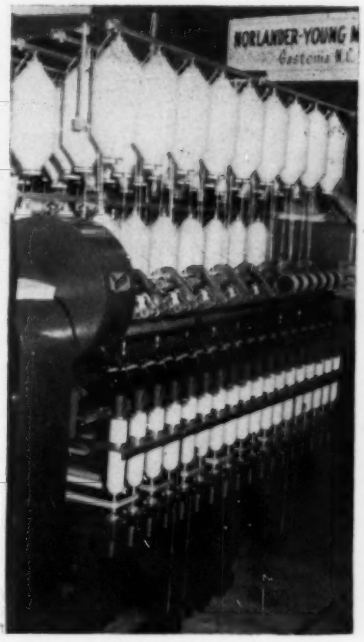
The winder also had a new tail-winding device that tucks the tail in under the bunch to keep the bobbin from cocking in the shuttle. The winder was equipped with a Parks-Cramer frame cleaner that cleans the head and the supply cones. The empty bobbins are now carried vertically from the bobbin distributor to the spindle from the hopper.

The machine was winding 20s cotton and 100-den. rayon at 15,000 rpm. on 1½-in.-dia. bobbins to produce 148 bobbins per hour per spindle at 100% efficiency. (G-81)



Spinning Ring

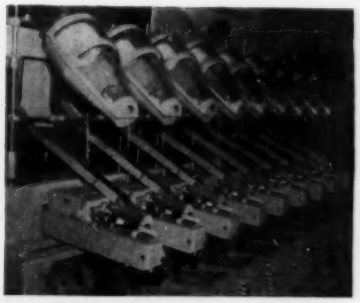
A spinning ring that requires oil only once in 24 hrs. was shown by Ragan Ring Co., Atlanta, Ga. Oiling is twice as fast as for conventional rings because of twin ducts leading to large reservoirs. No wicks are used, and the finish is rustproof. The rings are especially suitable for spinning synthetic and worsted fibers and for twisting cotton yarns. (G-82)



Spinning Change-Over

A spinning change-over with swing-saddle center suspension and anti-friction top and bottom rolls was displayed by Norlander-Young Machine Co., Gastonia, N. C.

Roll stand is 45°. Sealed ball-bearing fluted rolls have a run-out not to exceed 0.003 in. Cradle can be adjusted to 0.005 in. (G-84)

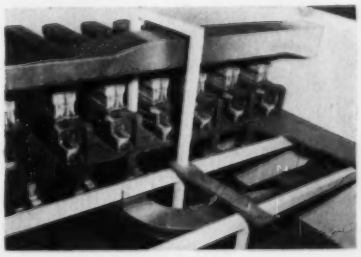


Filling-Bobbin Winder

The Whitin-Schweiter automatic filling-bobbin winder, called Fillmaster, was shown by Whitin Machine Works, Whitinsville, Mass.

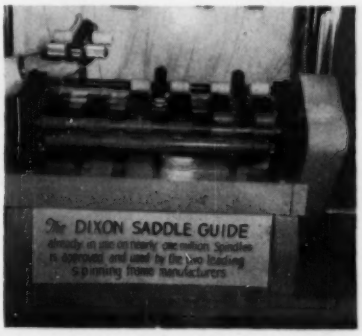
The supply package, tension device, and yarn path of each individual winder are housed in a single casing. The suction works continuously and individually; and when an end breaks, the transparent casing raises automatically. After knotting, the open cover closes automatically when the machine is started.

Other features include a double-disk tension, an empty-bobbin loader, a preliminary winder that prevents loose tails, and an automatic packer that eliminates the placing of full bobbins into bobbin boxes. (G-86)



Materials-Recovery System

A model of the central materials-recovery system was displayed by Pneumafil Corp., Charlotte, N. C. All waste is automatically conveyed through duct work to the picker room where it is put back in the work. In addition, the system provides more-even air distribution in the spinning room, and less air conditioning is required. (G-83)



Spinning Saddle Guide

The Super saddle guide was shown by Dixon Corp., Bristol, R. I. There are no cap bars, guides, or weights. Features include reduced cleaning, low maintenance costs, no lubrication, lower power consumption, and simple installation. Rolls turn in unison, and buffing is done on the original centers. (G-85)

Doubler Twister

U. S. Textile Machine Co., Scranton, Pa., showed a downtwister running at 9,000 rpm. on 40-den., zero-twist Dacron. Up to 10 ends can be run on the frame, which has a 10-in. traverse and makes a 2½-lb. package. A bottle wind, straight wind, or pirn wind can be made without additional parts.

The machine has 4¾-in. rings. A mechanical feed-roll clutch device works with the stop motion to stop the spindle and the feed roll when the yarn breaks above or below the feed roll. An oiling device has one roll to transfer oil to the yarn roll to give a constant supply of oil to the yarn. (G-87)

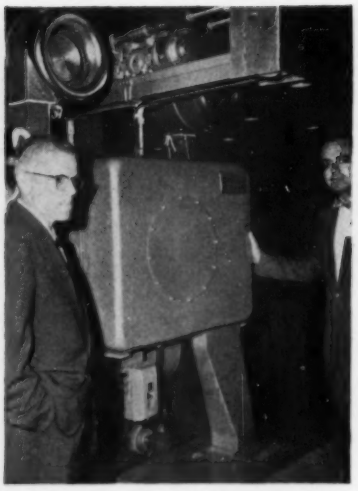
Quill Straightener

International Textile Machinery Co., Charlotte, N. C., showed a device on a Whitin-Schweiter filling winder that puts the quills straight as they fall into the quill box. The quill drops into a chute when it is filled, and it is guided into the feed box where a pneumatic plunger presses it into the quill box from the bottom.

Normal quill boxes are used, but an insert fits over the end of the box. The pneumatic device works from a pressure of 60 lbs. per sq. in. (G-88)

Yarn-Conditioning Attachment

A yarn conditioner that may be attached to an Abbott quiller was shown by Mona Industries, Paterson, N. J. The conditioner acts on the filled bobbin or quill as it is released from the quiller. The quill is rolled over a belt moistened with a conditioning solution and continues on to the usual collecting box or pinboard. A feed trough supplies the required amount of solution to the belt. (G-91)

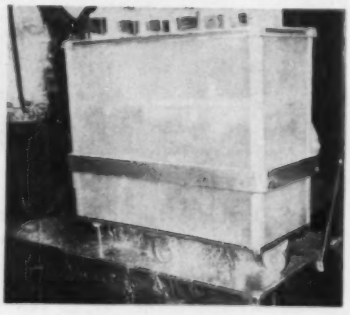


Spinning-Frame Cleaners

Bahnson Co., Winston-Salem, N. C., demonstrated a cross-jet frame cleaner and collecting system on a Whitin spinning frame.

The frame cleaner has two paddle-type fans in casings that rotate and two fixed cleaning units. All fans are driven by 1-hp. lint-free, prelubricated motors. The cleaner travels at 150 ft. per min. over the frames to clean up to 20 frames. The frame was equipped with a Bahnson Open-Aire creel made from extruded aluminum bars.

The collecting system has anodized aluminum flutes that don't crack. The 2-hp. motor is enclosed in a casing made from two stampings. The air is exhausted over the spinning-frame motor through duct work in the floor to the outside to keep the air around the frame free from excessive heat. (G-93)



Yarn Trucks

Shown for the first time by Excel Textile Supply Co., Lincolnton, N. C., were spring-bottom yarn trucks with bodies made of a plastic in which fibers are embedded to give strength and shock resistance. An advantage of the trucks made of this translucent material is that the amount of cones or bobbins in the truck can be seen at a distance. (G-90)

Tape-Bonding Machine

A mobile unit that bonds nylon spinning tapes was shown by Oliver D. Landis, Inc., Charlotte, N. C. Automatic temperature controls insure a perfect bond on nylon tapes in 15 secs. Platens are Teflon coated. The unit operates on 110- to 115-v. a.c. current. (G-92)

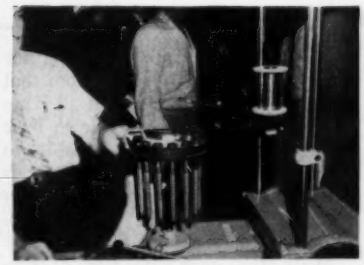
Doff Truck

A doff truck with tight and loose boxes, both equipped with floating bottoms, was shown by Fisher Mfg. Co., Hartwell, Ga. The truck is used to take bobbins from the spinning room to the spooler room, where the loaded loose truck is placed on racks adjoining the spoolers. Storage capacity is increased, and rehandling is eliminated. (G-94)

Twister

The Unirail uptwister shown by Universal Winding Co., Providence, R. I., demonstrated the final stage of a high-speed system for twisting cotton yarns. The initial twist is put in the yarn on a Model 10 ring twister, and the final twist is put in at 10,500 rpm. The yarns run were 60/2 cotton-Dacron blend and 80/2 cotton. The twisted yarn is taken up on headless packages suitable for warping.

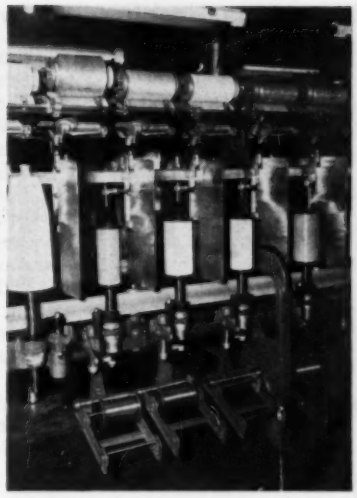
A second uptwister was twisting 15-den. nylon on one side of the upper deck and twisting 30-den. nylon on the opposite deck. The lower deck was twisting two-ply 70-den. nylon sewing thread, which was taken up on iron-head bobbins. (G-95)



Metallic-Yarn Adapter

A Whitin-Schweiter quiller spindle with a spool adapter for winding metallic yarns was demonstrated by Dobeckmun Co., Cleveland, Ohio.

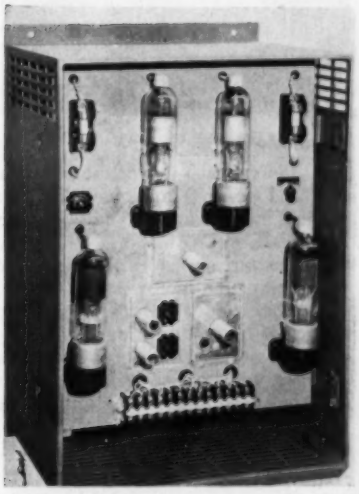
The adapter allows unwinding of metallic yarns off spools up to a spindle speed of 2,700 rpm. The yarn runs from the spool through a fixed eye and through an eye on a pivoted bracket. When the spindle stops, the bracket drops and an arm engages in a brake on the spool spindle to stop the spool and prevent overruns and breaks. (G-97)



Twister

A double-deck twister shown by U. S. Textile Machine Co., Scranton, Pa., has attachments for producing decorative metallic yarns. The metallic yarn runs horizontally on a supply bracket below the vertical spindle. The supply bracket allows for a constant speed and uniform tension, which is necessary for metallic yarns. The yarn travels up through the hollow vertical spindle.

Two brackets allow for two metallic yarns to be used. The yarn is wound from double-end bobbins at 9,000 rpm. and put on 2-lb. tapered-end headless packages. (G-99)

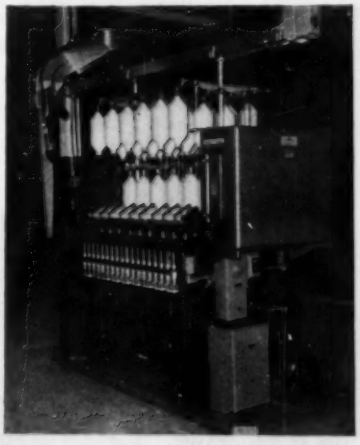


Adjustable-Speed Drive

An adjustable-speed drive for winders was demonstrated by Reliance Electric & Engineering Co., Cleveland, Ohio.

The drive gives a speed range of 100 to 1 with continuous electrical speed adjustment and with a high degree of stability over the entire speed range.

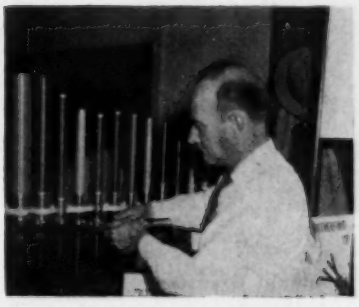
The capacity of the drive is from ½ to 4 hp. (G-96)



Suction Cleaner for Spinning

The SpinSaVac suction-cleaning system for spinning frames was shown operating on a Whitin Super-Flex frame by Parks-Cramer Co., Fitchburg, Mass. The clearing conduits, made of ethyl-cellulose plastic, fit snugly beneath the bottom front roll so that ends can be pieced up easily.

The system is available with a unit collection box and fan, a unit collection box and central fan, and a central collection box and central fan. SpinSaVac can be applied to frames spinning cotton, wool, and synthetic fibers. (G-98)



Traveler Gun

A gun to place travelers on spinning rings was shown by Watson & Desmond, Charlotte, N. C.

The gun takes travelers of various sizes and has a magazine that holds 400 travelers. The gun is being tried in several U. S. mills but is not yet on the market here. It is made in Germany. (G-100)

CONTINUED ON PAGE 234

Warping, Slashing, Weaving

The trend in weaving has been toward higher speeds, larger packages and specialized machinery. The Nineteenth Southern Textile Exposition has shown a slow-down and, in some instances, a reversal of this trend.

Speed was not emphasized as a feature of any of the looms at the show. Some increase in package size is predicted, especially in yarn beams, as was shown by the new slashers that will handle beams with heads up to 36 ins. But the limit in size of such packages has just about been reached from a practical operating standpoint.

The trend in loom design is toward a general-purpose loom within the limitations set by the factors governing weaving. Of course it would not be practical to try to have a loom that would be equally efficient on all types of fabrics. But it is possible to have looms that are easily adaptable to rayon, cotton, synthetics, and blends and looms that can be converted from plain to fancy weaving with a minimum of time and parts.

With the increasing role of synthetics in the fabric picture and the changing fashions in cotton, a mill must be in condition to make a change-over almost overnight to meet competition and produce what the consumer wants at the moment.

Most of the looms at the show were of the type to stress the trend toward versatility. They are looms that will efficiently produce a variety of fabrics from many different fibers and blends.

Another trend in weaving was highlighted at the show. There is a growing tendency toward precision machinery and setting of loom parts. The days of the molded cast-iron parts for power looms are numbered.

Mechanical loom cleaners attracted a lot of interest. With several years of experimental tests back of the cleaners and with many mills already using them successfully, several exhibitors expect to see mechanical cleaning of looms become more and more widespread.

Warp Lubricator

An improved-model warp lubricator with a variable-speed drive to the applicator roll was introduced by Seydel-Woolley & Co., Atlanta, Ga. The lubricator is designed to prevent accumulations of fly in the trough. The melting pot and trough both carry controlled heating units that keep the lubricant at the desired temperature. Both pot and trough are insulated to help maintain a uniform temperature. (G-101)

Semifluid Greases

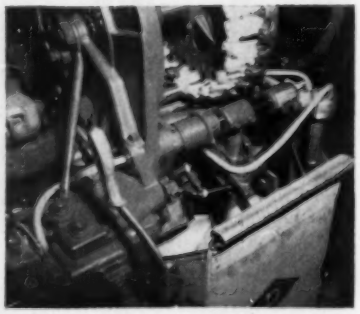
Improved greases were shown by Sinclair Refining Co., New York, N. Y. Called Sinclair No-Drip Nos. 8, 12, 15, and 17, the greases contain high-quality base lubricating oils plus special soap thickeners.

Benefits claimed for the No-Drip greases are high lubrication protection, rust prevention, extra stay-put quality, increased stability at high temperatures, and excellent storage qualities. (G-102)

Clutch-Brake Loom Motor

A squirrel-cage clutch-brake motor for Draper looms was shown by Westinghouse Electric Corp., Buffalo, N. Y. The motor is 1 hp., 1,200 to 1,800 rpm., three phase, 60 cycles.

Features are (1) standard-type rotor and stator, (2) extra-sturdy clutch and brake disk, (3) oversized heavy-duty bearings to withstand the shock of loom applications, and (4) fortified insulation. (G-103)

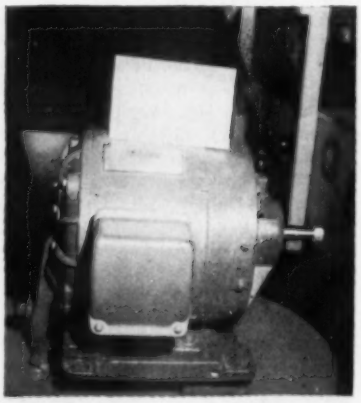


Pneumatic Thread Clearer

A pneumatic thread clearer was shown by Draper Corp., Hopedale, Mass. This clearer removes loose filling ends from the battery at filling change.

The mechanism is said to reduce drag-ins and other cloth imperfections caused by filling waste being drawn into the weave.

The thread clearer is available for use with looms equipped with the conventional battery and also for the new automatic filling magazine. (G-104)



Loom Motor

A squirrel-cage loom motor with oversized bearings for longer life was running in the booth of Westinghouse Electric Corp., Buffalo, N. Y. A roller bearing is used on the pinion or work end of the motor.

The heavy-duty bearing in the other end gives higher load-carrying capacities. The outer race of the bearing is clamped to the bearing housing to minimize shock loading from loom vibration.

The motor is ¾ to 2 hp., 60 cycle, two or three phase. (G-105)

Stop-Motion Electrodes

Electrodes with serrated blades were shown by Draper Corp., Hopedale, Mass. The serrated blades make the finding of broken warp ends easier.

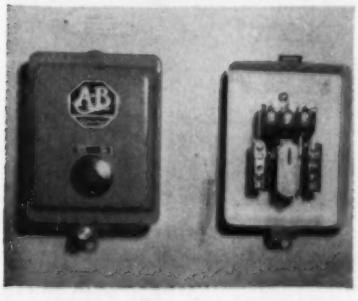
The improved electrodes may be readily applied to all K-A electrical warp stop motions now in use in mills. (G-106)

Loom Cleaner

The Oscillaire traveling loom cleaner with continuously oscillating air outlets and elongated flexible sleeves was shown by Parks-Cramer Co., Fitchburg, Mass. Air jets have extra-high velocity and are closely controlled in shape, direction, and intensity. Requiring only one motor and fan, the unit is mounted on Parks-Cramer's special weave-room track. (G-107)

Loom Mounting Pad

Loom pads made of vinyl were shown by Clark-Cutler-McDermott, Franklin, Mass. The pads require no bolting or cementing; are impervious to oil, ozone, and detergents; and can be reused when looms are moved. (G-108)



Loom-Motor Switch

Loom-motor switches with manual-starting switches and toggle action were demonstrated by Allen-Bradley Co., Milwaukee, Wis. The switches completely protect against entrance of lint or escape of sparks, and therefore fire hazards are reduced. (G-109)

Machine To Clean Reeds

Several improvements on its machine to clean reeds were shown by Affutex Hagerup & Lindquist Eftf., Georg Larsen Machinery, Copenhagen, Denmark, and Edda International Corp., New York, N. Y., and Greenville, S. C.

The machine polishes and grinds reeds. The improvements are: (1) The stand or reed holder has been changed so that it is now impossible to block the stop nuts inadvertently; (2) the stone- and brush-holder arm is equipped with special springs that absorb shock during the turning movement; (3) the holder also has a new lifting mechanism that begins operation precisely when the machine starts rolling from one grinding position to the next, and (4) all axles have oil packing rings, and the brush-holder arm has a rubber case to prevent grinding dust from getting inside the machine.

The machine grinds and polishes reeds up to 2,700 mms. long and 180 mms. wide. (G-110)

Automatic Filling Magazine

An automatic filling magazine was shown on a 50-in. X-2 loom by Draper Corp., Hopedale, Mass.

The magazine eliminates the use of the conventional battery. The bobbins are automatically loaded into magazines direct from the winder.

The magazines are transferred to the looms, and there is no handling of individual bobbins in the weave room. (G-111)

Ball-Bearing Sheaves

Plastic harness sheaves with sealed ball bearings were shown by National Plastics, Inc., Knoxville, Tenn.

The sheaves are available in all standard sizes and in both regular and compensating types. Another feature of the sheaves is the elimination of the reinforcing spokes and a more-rigid construction. (G-112)

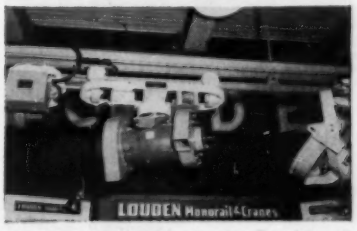
Power Transmitter

An improved Diehl power transmitter for looms was shown by Draper Corp., Hopedale, Mass.

The positions of the rotor, clutch, and brake have been reversed in the shell of the transmitter. The more-efficient alignment of the component parts is said to assure quicker stopping and starting of the loom. (G-113)

Dobby Loop

A dobby loop with a spit end to snap on over the top harness wire (leader wire) was shown by W. D. Dodenhoff Co., Inc., Greenville, S. C. The antifriction loop is said to give smooth harness action with no wear to the dobby jacks. (G-114)

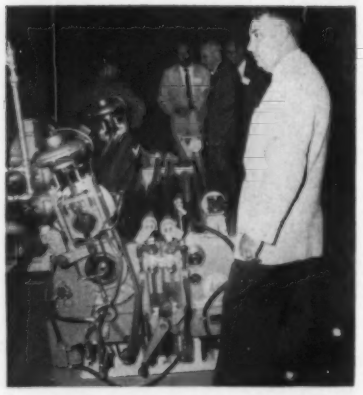


Revolving Loom Cleaner

A revolving twin-blower loom cleaner was shown by Louden Machinery Co., Fairfield, Iowa. The cleaner is designed to operate on both monorail and cranes. Travel speed is 70 ft. per min., and the blower revolves at 10 rpm.

One 2-hp. continuous-duty totally enclosed motor powers nonclogging fan blades on both blowers. The fans revolve at 3,500 rpm.

Revolving adjustable nozzles hit at looms from all angles downward and prevent lint accumulation. (G-115)

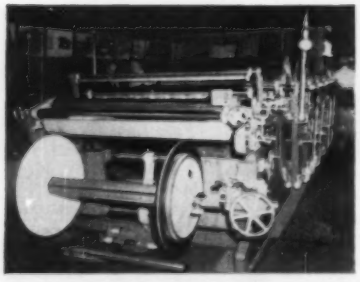


Slasher Size Box

A new size box with electronic controls was shown by Cocker Machine & Foundry Co., Gastonia, N. C. Called the Sizemaster, it has a number of new features.

It is claimed that predetermined penetration of from 45 to 100% can be maintained and that size pickup can be held constantly at a predetermined figure of 5 to 17%.

All the air is squeezed from between the fibers before entering the size box. An auto-positioner roll compensates for speed changes by varying the position and pressure of the top rolls. Steam jackets on the top and dresser rolls keep them at the same temperature as that of the size box. (G-116)



Slasher Front

A new front for either Air-Dry can, or cylinder slashers was shown by West Point Foundry & Machine Co., West Point, Ga.

Among its improved features are: (1) comb mounted low and near the front so that ends can be counted in easily while standing on the floor, (2) easily adjustable for beams from 20 to 60 ins. in length and with heads to 36 ins. dia., (3) latch-type doffing that eliminates the need of a hoist to doff a full beam, and (4) pneumatically controlled press rolls. (G-117)

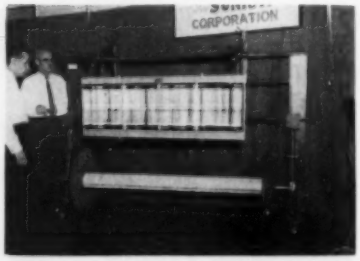
Moisture Monitor

A moisture monitor, shown by Strandberg Engineering Laboratories, Inc., Greensboro, N. C., indicates whether the yarn on the slasher is normal, wet, or dry. The monitor automatically controls the slasher to keep the yarn at a normal percentage of moisture. It can be set at any normal position. The detector acts across the full width of the yarn sheet. (G-118)

Swinging Bobbin Support

A new swinging bobbin support made of aluminum was shown by H. F. Livermore Corp., Boston, Mass.

The bobbin support is adjustable at the pivot. A replaceable steel clip holds the bobbin firmly in place in the battery and keeps the bobbin from turning. (G-119)



Beam Truck

A manually operated beam truck that lifts beams from the floor and conveys them to the loom was shown by Sunray Co., Spartanburg, S. C. One man can handle a beam with the truck. The harness fits on a rack over the beam, and the rack moves out so that the harness can be dropped straight in the loom. The beam lifts vertically, and it can be moved horizontally. (G-120)

Loom Harness Sheaves

Harness sheaves for cam looms were shown by Dixie Bearings, Inc., Greenville, S. C. The sheaves have ball bearings and are said to have the following qualities: (1) reduce harness-cam wear, (2) improve shedding-motion action, (3) eliminate strap wear, (4) eliminate sheave-shaft wear, (5) lessen load on springs, and (6) eliminate second-quality cloth caused by sticking sheaves. (G-121)

Nylon Pattern Rolls

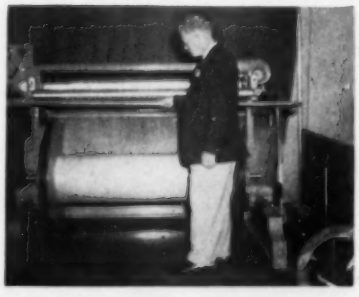
Pattern rolls and links made of nylon were shown by H. F. Livermore Corp., Boston, Mass. Made to close tolerances, the rolls will withstand more than 2,000-lb. pressure.

The rolls can be obtained in colors to assist in building a pattern chain. A newly designed steel clip is used to hold the pattern links together. (G-122)

Control for Size

An instrument to control the size level in slasher size boxes was shown by Powers Regulator Co., Greensboro, N. C. The control is said to control the size level constantly within $\frac{1}{8}$ in.

The instrument is equipped with a Teflon-coated bubbler tube that is about 3 ins. below the size surface. Size will not stick to the tube to cause caking and stopping of the size flow. (G-123)



High-Speed Warper

A high-speed warper that will accommodate beam heads up to 40 ins. was shown by the Allen Beam Co., New Bedford, Mass.

The warper has speeds to 1,000 rpm. and will handle cotton, rayon, synthetic fibers, glass, wool, worsted, paper, and rubber-covered yarns.

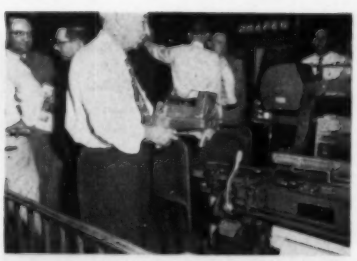
Horizontal movement of the beam as it fills keeps the yarn under even tension at all times. (G-124)

Mechanical Loom Cleaner

A loom cleaner that uses helically spinning jets of high-velocity air to give a series of lifts and shoves to lint, fly, and dirt was shown by American Moistening Co., Cleveland, N. C.

The cleaner uses rapidly whirling outlet nozzles, which are driven by the air stream to direct the air jets. Air is always driven at an acute angle in a series of overlapping circular patterns at the loom and cloth surfaces to produce a rapid series of bursts of cleaning action. The cleaner passes over the looms in a timed cycle.

The track for the cleaner is suspended from the ceiling and has no supporting posts or attachments to the frames of the looms. Consequently, there is a clear view throughout the weave room. In addition to loom cleaning, ceiling cleaning is provided. The cleaner operates on 55-v. three-phase power for safety to employees. **(G-125)**



Photographic Pick Counter

A combined electronic flash gun and camera that records the picks or hanks produced on mill machinery was shown by Nemo Industries, Atlanta, Ga.

Advantages of the system include accuracy, low labor cost, and easy transferral of the film records to the usual accounting machines. After developing, the film strips are put in a projector so that the accounting clerk can check off the machine number and its production. **(G-126)**

Cotton Loom

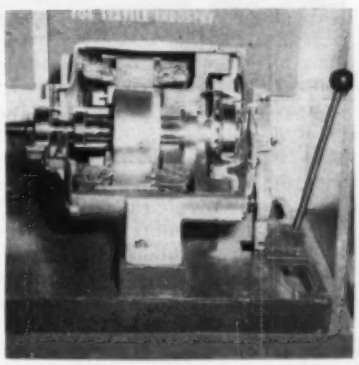
An M-P automatic bobbin-changing loom with improved features was shown by Crompton & Knowles Corp., Worcester, Mass.

The loom is 56 ins. between swords. It has a 20-harness dobby (1⅝ in. ga.) and 4 x 1 box. **(G-127)**

Multiple Checkstraps

Loom checkstraps made of four endless belts of rubber and fabric were introduced for the first time by Dayton Rubber Co., Dayton, Ohio.

The multiple checkstraps are impervious to moisture, do not stretch, and offer a safety factor in that one or two may break without causing immediate damage to the loom. **(G-128)**



Clutch-Brake Motor

A clutch-brake motor for looms, featuring a long-life bearing system, was exhibited by General Electric Co., Schenectady, N. Y. The motor insures more-constant loom speed and high efficiency.

Other claims are: (1) faster, more accurate braking, (2) reduced power requirements, (3) easy disassembly at the loom, (4) easy adjustment for uniform air gap, and (5) water-shedding stator for protection against humidity. **(G-129)**

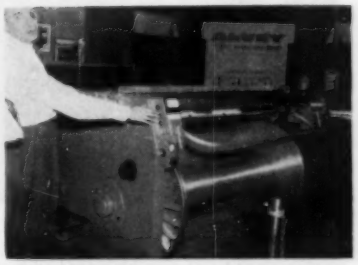
Checkstrap Stabilizer

A checkstrap stabilizer shown by Slip-Not Belting Corp., Greensboro, N. C., is used to reduce excessive wear of the checkstraps on high-speed looms. It is also claimed that the stabilizer eliminates vibration in the picking motion caused by the shuttle striking too hard against the lay end. **(G-130)**

Hydraulic Loom Check

An improved hydraulic checking system, (Checkmaster), for looms was demonstrated by W. D. Dodenhoff Co., Inc., Greenville, S. C.

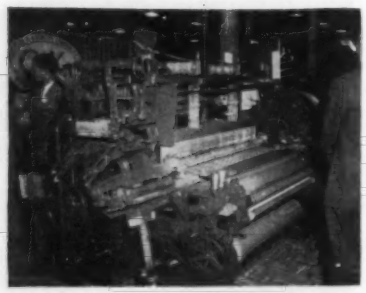
The attachment is said to have these features: positive, constant, and accurate checking on every pick; checks the power stroke in addition to checking the shuttle; permits over 10% increase in loom speed; eliminates constant adjustments to shuttle boxes and checkstraps; stops kinky filling and produces even selvages; is unaffected by temperature and humidity; and eliminates first-of-the-week start-up troubles. **(G-131)**



Section Beamer

The Sipp Model 158A 54¼-in section beamer was shown by Kidde Mfg. Co., Inc., Bloomfield, N. J. The machine is a spindle-driven warper designed to accommodate section beams with a maximum flange diameter of 36 ins.

The drive has a yarn-speed range of 8 to 1. The usual setting is from 75 to 600 yds. per min., but a speed of 1,000 yds. per min. is possible. The beamer has a large-diameter bakelite pressure roll controlled from hydraulic cylinders. Doffing is done hydraulically. **(G-132)**



Convertible Loom

One of its M-P looms of latest design was shown by Crompton & Knowles Corp., Worcester, Mass.

The loom is of the automatic bobbin-changing dobby convertible type. It is 56 ins. between swords and has a 20-harness dobby (1½ in. ga.).

This loom is easily converted from 1x1 box to 2x1 box and vice versa. (G-133)

Size Additives

Texize Chemicals, Inc., Greenville, S. C., offered two new additives for warp-sizing formulas. The products, known as TC131 and TC66, are claimed to improve weaving performance on either combed or carded yarns of high or low count. (G-134)

Bobbin Stripper

The bobbin stripper demonstrated by Terrell Machine Co., Charlotte, N. C., has a semiautomatic feeder that allows one operator to look after two machines. The bobbin strippers are arranged side by side; and the operator rakes quills into one of the two feeders, which passes the quills to the stripper.

The quills pass through a bobbin selector, which feels the yarn on the bobbin. Completely stripped bobbins fall on a conveyor and are deposited in a truck. Bobbins that are not completely stripped are dropped on another conveyor and returned to the hopper. (G-135)

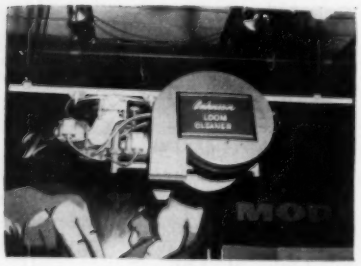
Machine Mounting Pads

Machine mounting pads made of Fiberglas and vinyl were shown by E. H. Jacobs Northern and Southern Div., Danielson, Conn.

The pads have suction cups and require no cement or other adhesive. They are not affected by oils, greases, or flood finishes and can be reused if the machinery is moved. (G-136)

Two-Cylinder Dobby

A two-cylinder dobby was shown by H. J. Theiler Corp., Whitinsville, Mass., equipped with a new American Standard head. The dobby is cam driven; and cams are supplied to keep the shed open during 60°, 90°, or 120° of one revolution of the crankshaft. The double cylinder allows long designs to be made such as for tablecloths and bedspreads. (G-137)



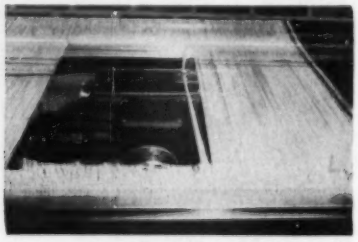
Loom Cleaner

The overhead loom cleaner shown by Bahnson Co., Winston-Salem, N. C., has a sweeping motion to blow lint away from the looms. The cleaner operates at 125 ft. per min., and it travels over 100 looms. There are two fans, and an individual 1/12-hp. motor supplies the rocking motion. The air intake is between the two fans, which are driven by 1-hp. motors. The conductor bar is insulated for safety. (G-138)

Starch Cooker

A jet cooker that prepares cooked starch only as needed for sizing or finishing operations was shown by Nemo Industries, Atlanta, Ga. The machine will handle a high percentage of solids such as talc or other weighters.

In operation, a slurry containing the sizing or finishing ingredients is pumped through a heater tube with enough steam to rupture the starch granules. Final cooking is accomplished in a heater coil, from which the cooked starch is led to the size box. Automatic controls produce a uniform product and may be extended to provide a constant level of size in the size box. (G-139)



Warp-End Selector

A machine to separate warp ends from a warp and carry them forward singly for drawing them through the drop wires at the drawing-in operation was shown by Edda International Corp., New York, N. Y., and Greenville, S. C.

The Titan Selector serves the ends to drawing-in hands. The hands have only to reach their hooks through the drop wires or heddles and hook the ends. (G-140)

Nylon Size

Supranyl, featured by Stein, Hall & Co., Inc., New York, N. Y., was described as particularly suited to sizing nylon warps. The product is resistant to heat-setting temperatures and need not be scoured off before the fabric is heat-set. Supranyl has good adhesion to nylon, provides an abrasion-resistant film, and is easily removed. (G-141)

Picker-Rod Lubricant

A special lubricant for picker rods was shown by Garland Mfg. Co., Saco, Me. The lubricant tube has an applicator that fits over the picker rod and applies the correct amount of lubricant. (G-142)

Dustless Starch

A large-grain pearl corn starch produced especially for bulk handling has been developed by Hubinger Co., Keokuk, Iowa. Marketed as OK Pearl Starch GTC, the product is claimed to cut down the dust problem in slasher rooms and handling areas. (G-144)

Loom Winders

Two Unifil loom winders, shown by Universal Winding Co., Providence, R. I., were winding yarn and transferring the bobbins to the shuttles on Draper XD and X-2 looms. The winders were also automatically stripping the yarn left on the bobbin and returning the clean bobbin to the winding unit. The XD loom was weaving filament yarn, and the X-2 loom was weaving 13s cotton in the filling and 47s cotton in the warp at 175 ppm. (G-143)

Compressed Dogwood Shuttles

In addition to its regular line of shuttles, a compressed dogwood shuttle was shown by Southern Shuttle Div., Steel Heddle Mfg. Co., Greenville, S. C.

The wood in this Durawood shuttle is compressed to almost twice the density of the original wood. The result is a well-balanced, long-wearing shuttle that is highly resistant to scarring and splintering. (G-145)

Lug Straps

Lightweight lug straps in both long and short models were shown by Gates Rubber Co., Denver, Colo. The straps are made of a nylon-cotton plastic-impregnated fabric and because of their light weight are more resilient and produce a softer pick. The life of the lighter straps is said to equal that of heavier straps. (G-146)

CONTINUED ON PAGE 234

Bleaching, Dyeing, Finishing, Cloth Room

The emphasis this year appears to be on equipment that will perform better at less maintenance cost.

The increasing demand for high-speed operation has forced equipment manufacturers to redesign and improve machine parts, using materials that are better suited to the greater strains imposed by high-speed operation.

Plants appear willing to invest in equipment of higher unit cost, just so it will produce more goods or services.

The development of the stainless steels, strong synthetic fibers, and new chemicals has been felt in almost every phase of machine manufacture, accessories, and cloth production.

Lighter, stronger parts for reciprocating motions, such as lug straps ¼ as heavy as older models, and corrosion-resistant coatings that make plain steel tanks acidproof, are examples of auxiliary equipment and supplies that have been improved through research.

Machine builders have moved closer to the goal of continuous operation. Automatic controls have made possible the combining of several processes in one, as witness the rapid development of continuous bleaching and continuous dyeing.

Improved finishing materials and methods, also dependent on better control and better machines, have resulted in a terrific increase in the minimum-care finishes now popular on cotton.

The basic trends in processing are toward improved fabrics produced by production-line methods as far as possible.

Nonmelting Grease

A nonmelting grease with a barium base was shown by Keystone Lubricating Co., Philadelphia, Pa.

Called the 5 P8 medium bearing grease, it is designed for use at extreme temperatures. Being acid-resistant, it is especially suited for dyeing and finishing machinery. (G-147)

Printing Thickener

A dry version of Ambertex was shown by National Starch Products, New York, N. Y. The product, called Ambersol, is recommended as a print-paste thickener that is more economical because it is supplied as a 100% active material; so shipping costs and less storage space are needed. (G-148)

Color-Matching Skylight

Lights that are accurate duplications of north-sky daylight were shown by MacBeth Daylighting Corp., Newburg, N. Y.

These lights are especially useful in the inspecting and color matching of today's high-style colored fabrics. (G-149)

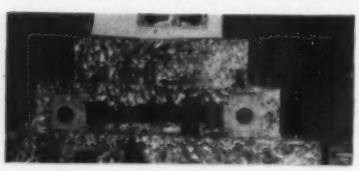
Dyeing Controls

Foxboro Co., Foxboro, Mass., showed cabinet-mounted controls for dyeing. The controls are in one integrated unit. The rate of rise can be set uniformly to give uniform conditions. The unit has indicators, recording charts, alarms, and signal lights. (G-150)

Butt Seaming Machine

Model 60 Y3B butted seaming machine, shown by Merrow Machine Co., Hartford, Conn., is used for sewing cloth pieces end to end. It helps prevent wrinkles on the selvages when the cloth is processed.

The width of the butted seam when opened flat is about $\frac{3}{8}$ in. The one-thread butted seam has more stitches per inch at the selvage of the cloth than at the center, and it can be easily removed after the cloth has been processed. (G-151)

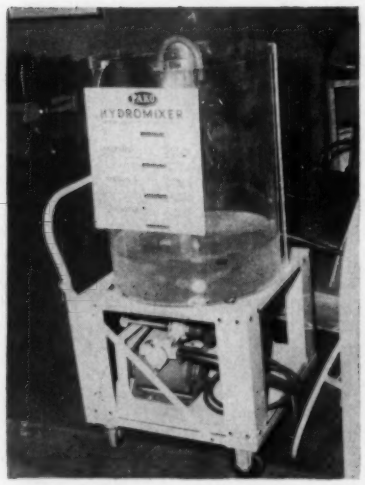


Armored Pipe and Fittings

Carbon and graphite pipe and fittings were shown by National Carbon Co., New York, N. Y.

Called Karbate, the pipe is made of impervious carbon, and the fittings are of impervious graphite. Both pipe and fittings have an armor of glass fiber.

The pipe and fittings are available in stock sizes from 1 to 4 ins. (G-152)



Chemical Mixer

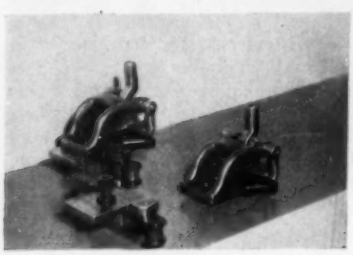
Pako Corp., Minneapolis, Minn., showed a model of its dye- and chemical-mixing machine.

A powerful pump intimately mixes dyes or chemicals with water and produces rapid solution of the materials. The mixer will produce up to 50 gals. of dissolved materials in a few minutes and then can be set to pump the solution into the processing machine.

No steam connections are necessary to produce perfect solutions of most materials used in the dyehouse. (G-153)

Color-Matching Lamp

A color-matching lamp with a booth was shown by MacBeth Daylighting Corp., Newburgh, N. Y. The lamp provides 150 ft. cs. on the floor of the working area of the booth. (G-154)

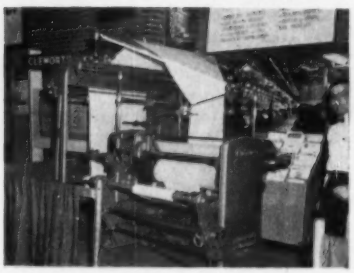


Tenter Clips

Marshall & Williams Corp., Providence, R. I., showed its two-piece No. 11 clip, designed for high-speed operation. The clip itself is easily removed from the tenter without breaking the roller-type driving chain. The clip is held in a machined slot by a heavy bolt with an Allen head. (G-155)

Vented Pin Plate

A pin plate for pin tenters that permits hot air to pass over the selvage area of the pinned material was introduced by Marshall & Williams Corp., Greenville, S. C. The pin plate is said to promote even drying and reduce color variations at the selvage of tricot materials. (G-156)



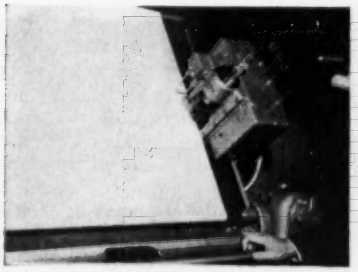
Fabric-Doubling Machine

A gauged doubling, measuring, and rolling machine shown by Robert Reiner, Inc., Weehawken, N. J., takes wide cloth and folds it book-fold fashion and winds it on a roll or on a cardboard bolt in one operation. All tension is taken from the cloth during rolling and the measuring device is accurate to 0.2%. (G-157)

Inspecting Machine

A cloth inspecting, rolling, and measuring machine was shown by Trumeter Co., New York, N. Y. The table for inspecting is equipped with translucent fluorescent lighting.

The machine has a variable-speed drive of 8 to 45 yds. per min., forward or reverse. Operation can be controlled by a foot pedal or by a shifter rod in front of the machine. Speed adjustment is by hand lever on a numbered dial. (G-158)



Fabric Inspecting Control

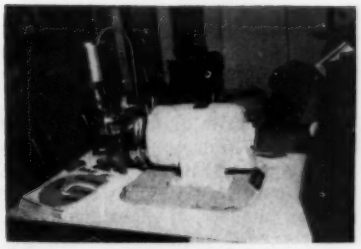
An inspecting stand for fabrics, shown by Robert Reiner, Inc., Weehawken, N. J., has an automatic fault-marking device. The device works on the selvage to tie one of three colored strings on the selvage. A feeler keeps the device close to the selvage at all times.

The fabric is drawn over a black-surfaced table at various speeds to suit the operator. A recording device is put into action when each fault is marked. The fault is marked in one of the three columns on a tape that also shows the yardage where the fault occurred. (G-159)

Cloth-Finishing Range

A brushing unit and a two-bladed shear were shown by Curtis & Marble Machine Co., Worcester, Mass. The brusher, Model M-125, is vertical and is designed to permit quick interchangeability of eight different cylinders for as many types of brushing effects. Standard widths are 50, 60, and 72 ins.; others are available on order.

The M-125 shear is designed to handle cotton and synthetics at high speed. An automatic seam protector and self-contained exhaust system are standard equipment. Revolvers are individually driven by electric motors. The shear is made in 50-, 60-, and 72-in. widths. (G-162)

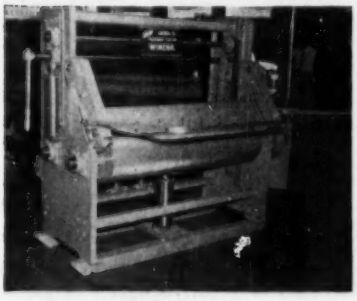


Colloid Mill

The Model RE two-stage colloid mill shown by Manton-Gaulin Mfg. Co., Everett, Mass., features a hand-removable end plate, stator, rotor, and seal. The model is available in capacities up to 2,600 gals. per hr.

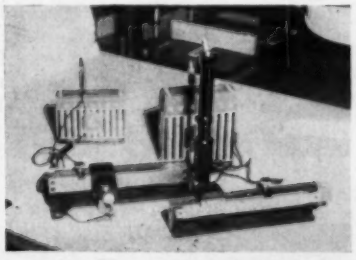
All parts coming in contact with the product being milled are of 18-8 stainless steel except the rotor and stator, which are supplied in materials to suit the work.

The mill body is water-jacketed for heating or cooling. Adjustment is simple and positive for any desired setting. Antifriction bearings are used throughout. (G-164)



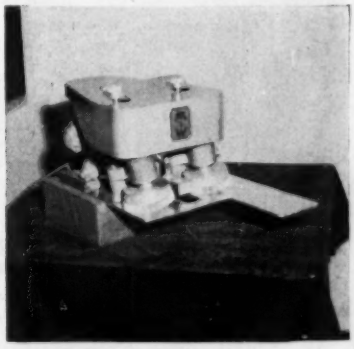
Cut-Off Winder

An improved version of the contact type of continuous batcher for cans or tenters was shown by Birch Bros., Inc., Somerville, Mass. The batcher is equipped with antifriction bearings throughout and will handle rolls up to 50 ins. in diameter. (G-160)



Illuminated Pick Counters

Pick counters that can be set to give 10, 20, or 120X magnification were shown by Claire Gingher & Son, Greensboro, N. C. The units are available in a screw-propelled model and one that is slid along a track manually. An illuminated field is provided by a battery-operated lamp. (G-89)



Selvage Uncurler

Marshall & Williams Corp., Greenville, S. C., introduced a selvage uncurler built especially for tricot-finishing frames. Rubber fingers mounted on power-driven heads remove the curl from tricot fabrics just before they approach the pins on the tenter frame. (G-165)

Rubber Rolls

Rubber-covered rolls made by Dayton Rubber Co., Holdfast Div., Atlanta, Ga., were represented by sample rolls with a variety of coverings for different wet-processing purposes. The company has developed new formulations, each particularly suited to the conditions under which the rolls will operate. (G-161)

Finishing Gums

Highly substituted starch ethers were featured by Penick & Ford, Cedar Rapids, Iowa. The gums are particularly suited for incorporation in the newer finishes based on thermosetting resins. These gums combine with the resins to produce durable finishes. (G-163)

Stainless-Steel Scutcher

A completely redesigned scutcher made of stainless steel was shown by Birch Bros., Inc., Somerville, Mass. The scutcher is available with the usual governor or air-operated guiders. (G-166)

CONTINUED ON PAGE 236

Auxiliary Equipment & Supplies

If mill men buy the new engineering equipment shown in booths set up to get the attention of mill engineers, master mechanics, superintendents, and department heads, mills will be cleaner and safer places to work; and exhibitors say that the mill men have shown positive indications of buying.

New models of floor scrubbers, sweepers, and polishers in both wet and dry types set the stage for buying. Because most mills already giving a great deal of attention to their floors are receiving concrete benefits in cleaner yarn and fabric, all first-rate mills that do not have systematic cleaning schedules will be forced to clean up soon.

Gasoline-powered floor machines that consume most of their own fumes will speed up cleaning.

Variable-speed drives, individual machine drives, such as card drives, and brake-controlled drives are on their way to assure lower power cost and more constant machine speed.

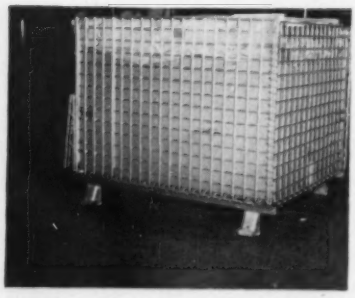
Electric motors with bigger and better bearings and built-in brakes in the new NEMA sizes will also bring lower power consumption with less maintenance. The higher torque of the motors should result in higher machine efficiency, especially at machine starts.

Centralized lubrication, after only a gradual rise in applications, is in a good position for greater use. The advantages, on spinning frames, for example, seem to outweigh many of the past objections.

Better electrical controls with designs established by textile men and control manufacturers have NEMA blessings. With no knock-outs for conduits, contamination from lint is sure to be decreased. As a result, there will be fewer flash fires. And because dirt and lint will be kept out of the controls, there will be less maintenance and fewer machine stops.

Instruments to control process equipment are also on the increase. With several manufacturers to choose from, mill men are sure to step up their use of the instruments to control machine temperature, yarn tension, and several other factors that increase productivity and improve quality.

Better materials-handling equipment shown makes it possible to set up constant-flow systems where yarn and fabric are moved over the same route constantly. And textile trucks made from lighter, improved materials will speed the flow of materials being manufactured.



Steel Pallet Boxes

Mesh-steel pallet boxes for handling wet or dry yarn and fabric were shown by Union Steel Products Co., Albion, Mich., and Wrenn Bros., Charlotte, N. C.

The boxes are being used for mercerizing, bleaching, dyeing, and winding fine cotton thread. The pallet boxes are made in several sizes, and the standard size is 32 x 48 ins. with a wall height of 28 ins. (G-167)

Potentiometer Transmitter

A potentiometer transmitter for the measurement and control of temperature, weight, load, pressure, and pH was shown by Taylor Instrument Cos., Rochester, N. Y. The transmitter receives a low input value, and the output is electrical up to 5 milliamps d.c. or 3 to 15 psi. pressure. A transmitter was regulating pH with the aid of a Beckman pH meter to within 1% accuracy. (G-168)

Automatic Calculator

Marchant Calculators, Inc., Greenville, S. C., showed the Decimagic automatic calculator, which positions dials and decimals automatically. Touching a single key automatically sets decimal points on the keyboard and all four dials and positions the carriage in readiness for every type of calculation. All entries and results in multiplication, division, addition, and subtraction are instantly and automatically pointed off. (G-169)

Wireless Paging System

A wireless paging system was shown by P. C. Gault Co., Greenville, S. C. Called the Kellogg Transvox Pager, the instrument has a speaker that is attached to the ear and a small receiver that can be held in the hand or pocket.

Messages can be sent from a central location to any part of a plant or building by means of the pager. (G-170)

Floor-Cleaning Machine

A 1-hp. motor produces a high vacuum in a unit designed to follow up after floor-scrubbing operations. The machine, built by Advance Floor Machine Co., Minneapolis, Minn., can also be used to deliver air under pressure for blowing off lint.

Capacity of the tank in the model shown is 16 gals. Large rear wheels and swivel casters make the unit easily portable. (G-172)

Gasoline-Powered Floor Machine

A gasoline-powered self-propelled combination floor scrubber and vacuum-pickup machine was shown by Finnell Systems, Inc., Elkhart, Ind.

The machine completely mechanizes scrubbing. It applies the cleanser, scrubs, and picks up all in one operation. Since it is independent of power lines, it goes where the operator guides it. (G-173)

Weighing Lift Truck

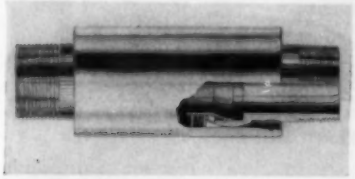
An electronic cotton-bale scale attached to a fork lift truck was shown by Hyster Co., Danville, Ill., Wrenn Bros., Charlotte, N. C., and Byron Miller Associates, Washington, D. C.

The truck lifts the bale with a crane, and the scale is between the crane and the bale. Up to 300 bales per hour can be weighed.

The scale records the weight as it weighs. The scale is so accurate that a 1-lb. weight placed on a 500-lb. bale of cotton changes the weight to 501 lbs. (G-174)

Tool To Set Studs

A hand-driven tool to drive steel studs into concrete, wood, or masonry was demonstrated by Ramset Fastening System, Cleveland, Ohio, and George H. Pennell Co., Greenville, S. C. The tool drives hardened studs of $\frac{1}{8}$ to $\frac{7}{16}$ in. (G-175)



Expansion Joints

Rotherm Engineering Co., Inc., Chicago, Ill., showed an expansion joint for steam lines that incorporates a spring-loaded Teflon compensating seal. Designed to take the place of U-bends or corrugated expansion sections, the joint is available in $\frac{1}{2}$- to 6-in. sizes to work at up to 500 psi. (G-176)

Concrete Drill

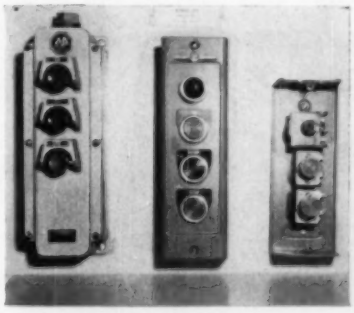
A tool to drill holes in concrete, granite, tile, marble, asphalt, and brick was demonstrated by George H. Pennell, Greenville, S. C., and Wheel Trueing Co., Detroit, Mich. The tool will drill $3\frac{1}{2}$-in. holes in 4-in. concrete floors.

The tool is carried, set up, and used by one man; and it drills in any position through 360°. (G-177)

Gear Motor

Gear motors were shown by Reliance Electric & Engineering Co., Cleveland, Ohio. The gear motors are available from 1 through 60 hp. in both a.c. and d.c.

Two-way seals lock the oil in and dirt out so that they may be mounted in practically any position without oil leakage. (G-178)



Electrical Push Buttons

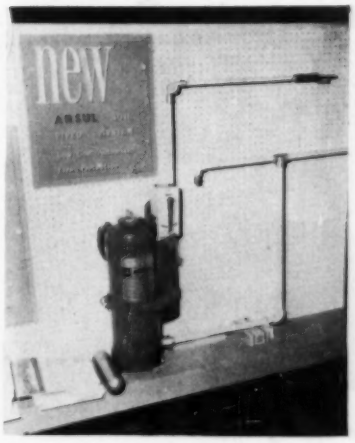
Heavy-duty electrical push buttons, rugged in construction but smooth in appearance, were shown by Allen-Bradley Co., Milwaukee, Wis. The line consists of push buttons, selector switches, and pilot lights. The units are furnished alone or in assemblies of eight units.

The push-button unit is the momentary-control type and has one set of normally closed contacts and one set of normally open contacts. Contacts are the double-break silver-alloy type and require no switching. (G-179)

Synthetic Grease

A synthetic grease made of silicones and spun glass was shown by Keystone Lubricating Co., Philadelphia, Pa.

Made for use at high speeds and at extra-high temperatures, the grease is called A-89 light silicone grease. (G-180)



Dry-Chemical Extinguisher

A fire extinguisher that smothers fires with a cloud of dry chemical propelled through a pipe system by CO_2 was featured by Ansul Chemical Co., Marinette, Wis.

The 30-lb.-capacity model shown is particularly adapted to small enclosed areas and is also suggested for installation on pickers.

The chemical released by the extinguisher is primarily sodium bicarbonate and leaves no objectionable after effects. (G-181)

Electrical-Braking Motor

Electrical braking of a.c. motors was demonstrated by Westinghouse Electric Corp., Pittsburgh, Pa. The braking is used for spinning, twisting, and roving frames, warpers, cloth-inspection frames, cloth folders, shearing machines, and other textile machines.

Features are: (1) a quick, smooth stop, (2) constant degree of braking; no periodic adjustments are required, (3) kinks in yarn on machines are eliminated, (4) power consumption is reduced, and (5) motor heating is reduced. (G-182)

Strapping Tool

An air-powered tool for strapping cartons, crates, boxes, bales, and rods was demonstrated by Stanley Steel Strapping Div., The Stanley Works, New Britain, Conn. It is for ⅜- to ¾-in.-wide strapping up to 0.020 in. thick.

With the tool, every strap is easily and quickly pulled up to the same predetermined tension. It weighs only 4 lbs. A two-position throttle permits easy operation while strapping the top or sides of containers. (G-183)

Textile Truck

A textile truck made of polyester resin and reinforced with chrome-impregnated Fiberglas was shown by Nutting Truck & Caster Co., Faribault, Minn., and Engineering Sales Co., Charlotte, N. C.

The truck is said to be practically indestructible. It has steel-like strength but is lighter than aluminum; a smooth inside surface with rounded corners is easy to clean; it's impervious to steam, water, oil, and mild acids and alkalis; it withstands temperatures from 40 to 500° F.; and it has ball-bearing wheels with replaceable rubber tires. (G-184)

Metallic Yarn

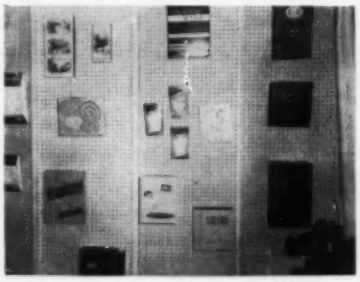
Metlon-with-Mylar in different colors was exhibited by Metlon Corp., New York, N. Y. New applications of this yarn were shown in towels, upholstery, and table cloths. Swatches demonstrated a solution to the problem of many colors in such items as automobile upholstery where gold and silver yarn is blended with different-colored cotton and rayon yarns to give more-standard shades. (G-185)

Corrosion-Resistant Paint

A factory paint that resists extreme conditions of moisture and acidity was shown by Truscon Laboratories, Decatur, Ga. Called Chemfast, the product is an amine-type air-curing resin that is resistant to acids or alkalis. Application is by brush, spray, or roller coating. More-rapid curing can be induced by the addition of small amounts of converter supplied with the paint. (G-186)

Variable-Pitch Sheaves

Variable-pitch sheaves for a wide range of uses were shown by Browning Mfg. Co., Maysville, Ky. Each sheave consists of two cast-iron flanges mounted on a cast-iron hub. The movement of the flanges along the hub is controlled by a hardened adjusting screw, which actuates two adjusting nuts. (G-187)



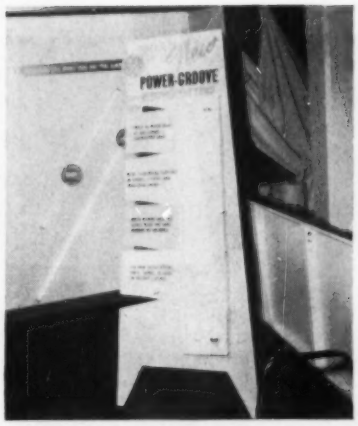
Machine-Formed Packages

Machine-formed packages for fabricated textile products were featured by Container Corp. of America, Greensboro, N. C.

The several types of boxes shown are all die-cut and shipped flat, which reduces storage space. When they are needed, the flat forms are put through special machines that make the box. Machine loading is also possible; and each box may be marked with style, color, brand, and units per box at the same time. (G-188)

Sizing and Finishing Gums

A series of gums made from corn starch and marketed as Stacolloid Gums was featured by A. E. Staley Mfg. Co., Decatur, Ill. The gums are characterized by good viscosity stability and are recommended for straight sizing application as well as for inclusion in resin finishes. (G-189)



Fluorescent Lamp

A fluorescent lamp, Power-Groove, was shown by General Electric Co., Cleveland, Ohio. The lamps are said to give twice the light of older lamps.

Other features are: (1) high efficiency, (2) lower power cost, and (3) higher lamp wattage. (G-190)

Floor Machine

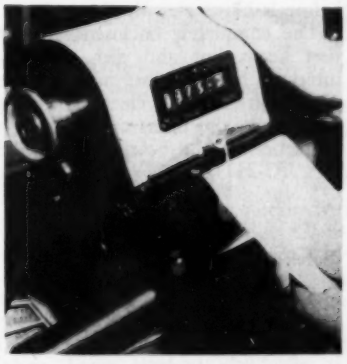
A machine to scrub and polish floors was shown by Finnell System, Inc., Elkhart, Ind. The Model 118R machine is equipped with a 12-gal.-capacity solution tank to give the operator long scrubbing time.

A 100-ft. rubber-covered cable on a self-winding reel lets the operator cover a greater floor area without changing electrical outlets. Large guide wheels at the rear provide operation ease. (G-191)

Power Sweeper

A power vacuum sweeper that sweeps a 28-in. path at 2 to 8 mph. was shown by G. H. Tennant Co., Minneapolis, Minn. With a side brush, the sweeper sweeps a 40-in. path.

The sweeper can be used indoors or out. It picks up light dust and heavy litter. A removable dirt hopper slides on rollers for easy dumping and holds about 250 lbs. of dirt. (G-192)



Counters

A three-shift counter that prints the last reading on the counter on a card was shown by N. Zivy & Cie S.A., Basel, Switzerland, and Stellite American Corp., New York, N. Y. The reading can be printed any number of times as required for payroll and production figures. (G-193)

Yarn-Tension Brake

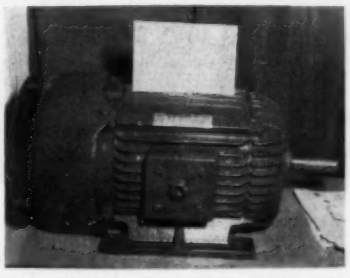
A yarn-tension brake was shown by General Electric Co., Schenectady, N. Y. The device is for synthetic and natural yarns. It gives even tension without friction, and the tension is constant over a wide speed range.

The brake has an accurate presetting tension range, and all brakes are set to identical calibration. (G-194)

Expendable Pallets

A low-cost corrugated paper carton designed to give product protection in shipment or storage was shown by Signode Steel Strapping Co., Chicago, Ill.

Designed for power handling, the cartons have wooden lugs attached to the bottom so that the fork of a power truck can slip under the carton. Dividers within the carton provide protection for such items as cones of yarn. Cost is estimated to be compatible with the value of the higher-priced items. (G-195)



Lint-Free Textile Motor

A lint-free textile motor for constant-speed individual a.c.-driven machines such as pickers, roving frames, spinning frames, twisting frames, and winders was demonstrated by Westinghouse Electric Corp., Buffalo, N. Y.

The motor is made in 1- to 30-hp. sizes; it's totally enclosed and fan cooled; voltage is 220, 440, or 555; it's two or three phase; and frequency is 50 or 60 cycles. (G-196)

Squeeze-Bottle Marker

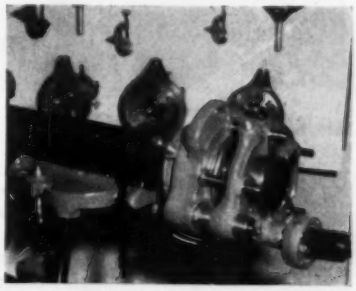
Water-color inks packed in a plastic bottle with applicator tip were shown by Marsh Stencil Machine Co., Belleville, Ill. The inks mark paper, wood, or cloth and are available in 8 colors. (G-197)

Bimetal Thermometers

Dial thermometers featuring an antiparallax face and an articulated joint that permits angular mountings were introduced by Manning, Maxwell, and Moore, Inc., Stratford, Conn. The thermometers are available in 20 ranges, from −80 to 1,000° F. (G-198)

High-Capacity Steam Traps

Impulse-type traps of high capacity were shown by Yarnall-Waring Co., Philadelphia, Pa. The traps are available in ½-, ¾-, 1½-, 2-, and 2½-in. sizes. The ½-in. trap will pass 2,750 lbs. of condensate per hour. (G-199)



Geared Pipe Threader

A new jamproof pipe threader was shown by Ridge Tool Co., Elyria, Ohio. The threader will handle pipe from 2½ to 4 ins.

Called the No. 4P, the threader has loop handles that make it easy to carry and put on the pipe. The threader has five high-speed steel dies that are held in place by spring and ball. It is designed for either hand or power operation. (G-200)

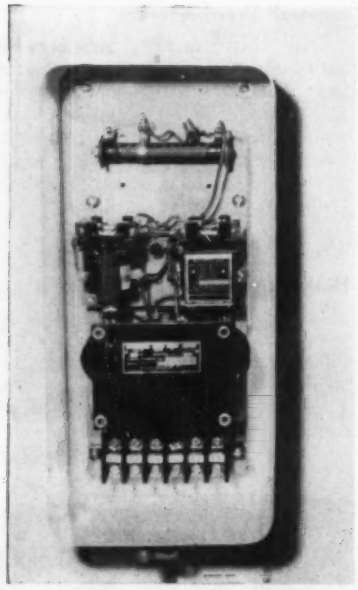
Fisherman's Knotter

Cook & Co., Manchester, England, showed a fisherman's knotter that is used chiefly for worsted yarns. The knotters tie knots with long tails or with short tails, and they tie a wide range of yarn sizes. (G-201)

Automatic Air Trap

An air trap that ejects water from all air-line applications was shown by Wilson F. Hurley, Greenville, S. C.

Made by M-B Products, the air trap is said to assure dry air in pneumatic systems at all times regardless of humidity or other contributing factors. (G-202)



Electrical Relays

Phase-failure relays and phase-reversal relays were shown by Allen-Bradley Co., Milwaukee, Wis. The relays are designed to prevent a.c. polyphase motors from operating on power circuits that exhibit phase failure or reverse-phase conditions.

Because they detect phase failures and reversals electrically, the relays disconnect the motor control within three or four cycles. (G-203)

Threadless Valves

A line of threadless valves was shown by Walworth Co., New York, N. Y. The valves are joined to pipe by factory-inserted rings of silver brazing alloy in threadless ports.

To install the valves, pipe or tube ends are cleaned and fluxed and are heated with an oxyacetylene flame. The fittings are said to be leakproof and stronger than the pipe or tube. (G-204)

Plant Disinfectant

A detergent that also has powerful germ-killing properties was shown by West Disinfecting Co., Long Island City 1, N. Y. Called Westcodyne, the product contains iodine in a modified form and is recommended for maintaining germ-free conditions in plants, laboratories, dispensaries, cafeterias, and any areas where a germicidal detergent is necessary. (G-205)

Chemical-Resistant Paint

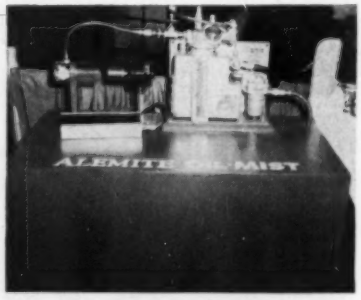
A paint that resists chemicals was demonstrated by Gilman Paint & Varnish Co., Chattanooga, Tenn., and Olney Paint Co., Spartanburg, S. C., and Greensboro, N. C.

The paint is said to be effective on surfaces where chemicals and moisture are encountered. Because of its high solids content, it requires few coats to obtain an adequate dry film thickness. (G-206)

Industrial Safety Belts

The Saf-Driv automotive seat belt was shown by Southeastern Safety Appliance Co., Atlanta, Ga.

The seat belts come in three standard models. Custom installations can also be obtained for trucks, buses, emergency vehicles, and sport cars. (G-207)



Centralized Lubrication

Two models of centralized lubrication were shown by Alemite Div., Stewart Warner Corp., Chicago, Ill. One lubricates 300 bearing inches, and the other lubricates 500 bearing inches.

A 3-gal.-capacity tank holds enough oil to last 48 hrs. The system has no moving parts to wear out. The only manual operation is filling the oil reservoir. (G-208)

Corrosion-Resistant Paint

A paint designed for moderate resistance to corrosion by many chemicals was introduced by Truscon Laboratories, Decatur, Ga. Suitable for walls, ceilings, and machines, the product, known as Speed-rex, is fast-drying and protects against conditions of high humidity, acidic atmospheres, and most lubricants, cutting oils, and detergents. (G-209)

Inventory Control

A Cardatype accounting machine was shown by International Business Machines Corp., New York, N. Y. The machine works in conjunction with two electric typewriters to keep an inventory control for a textile mill. The system is used for making invoices and accounts receivable and for making packing slips and case labels.

A slave card-punch machine also keeps the inventory up to date. One girl operates the four machines. (G-210)

Textile Motor

A totally enclosed fan-cooled textile motor designed to operate continuously in lint-laden atmospheres was shown by General Electric Co., Schenectady, N. Y.

Positive lint expulsion is provided by a ventilating system consisting of a smooth self-cleaning fan cover. Ventilated air passes through the fan cover and reaches a high velocity before it blows over the frame.

The completely enclosed construction keeps lint and dirt from the interior of the motor and provides protection against electrical breakdowns. It also offers a maximum of protection to the bearings and windings. (G-211)

Quick-Drying Paint

A quick-drying, chemical-resisting paint was demonstrated by Barreled Sunlight Paint Co., Providence, R. I. It effectively protects wood, metal, brick, concrete, and other masonry from the destructive action of acids and alkalis.

The paint may be applied by brush or spray. It dries in 2 to 3 hrs. to a hard, tough, medium-gloss finish of great flexibility. Since it dries entirely by the evaporation of its solvents, it may be recoated immediately after the 2- to 3-hr. drying period. (G-212)

Gasoline-Power Sweeper

A gasoline-motor power sweeper was shown by G. H. Tennant Co., Minneapolis, Minn. The cord used on electric models is eliminated, and therefore the manufacturer says the machine increases cleaning production up to 50%.

The sweeper sweeps a 21-in. path and is light in weight. It buffs, waxes, polishes and scrubs. (G-213)

Package Drives

A variable-speed package drive was shown by Allis-Chalmers Mfg. Co., Milwaukee, Wis. The drive consists of (1) a power unit, and (2) an operator's control station, and (3) a drive motor.

All three of the basic components are designed to operate as a unit and are integrated to work together. The drive is available in 5 to 200 hp. (G-214)

Solution-Dyed Rayon

Five new colors of solution-dyed rayon staple were shown by Courtaulds (Alabama), Inc., New York, N. Y. The colors are peacock blue, medium brown, terra cotta, hunter green, and silver gray. (G-215)

Nylon Yarns

Caprolan nylon yarns were shown by Allied Chemical & Dye Corp., National Aniline Div., New York, N. Y. The yarns were on 30-lb. packages with up to 3.5 tpi. Fabrics for upholstery and automobile seat belts were shown. Yarn sizes range from 2,100 to 15,000 den. (G-216)

Rotary Pressure Joint

A syphon elbow for slasher cylinders, drying cans on finishing machines, and other textile uses was shown by Johnson Corp., Three Rivers, Mich.

The syphon can be removed from the rotary joint without stopping the slasher. Then the syphon can be cleaned and replaced with the slasher or machine still running. (G-217)

Plastic Valves

A line of rigid polyvinyl-chloride valves and fittings were shown by Walworth Co., New York, N. Y. The valves will not contaminate fluids and will not corrode.

The parts are supplied in two compositions: (1) normal impact is identified by a gray color, and (2) high impact is identified by a light-gray color. (G-218)

Fiberglas Box Trucks

Fiberglas box trucks were shown by Beetle Boat Co., Inc., New Bedford, Mass., and W. D. Dodenhoff Co., Inc., Greenville, S. C.

The trucks are permanently white, require no maintenance because they will not chip or crack, and are impervious to water, oil, grease, and most chemicals.

They will protect the most delicate yarn or fabric from tearing or snagging. (G-219)

Speed Reducers

Cone-drive speed reducers were running in the booth of Cross Sales & Engineering Co., Greensboro, N. C. The reducers are 2-in. through 6-in. center distance for loads up to 60 hp.

The reducers are available in worm-over, worm-under, or gear-shaft vertical models. Each is available in right-hand or left-hand assembly. (G-220)

Tank Coatings

Tanks, pipes, and other equipment requiring acidproofing can be treated with Amer-plate coatings, shown by Industrial Coatings, Inc., Greenville, S. C.

The coatings are based on polyvinyl chloride. Application is at the product-manufacturer's plant. (G-221)

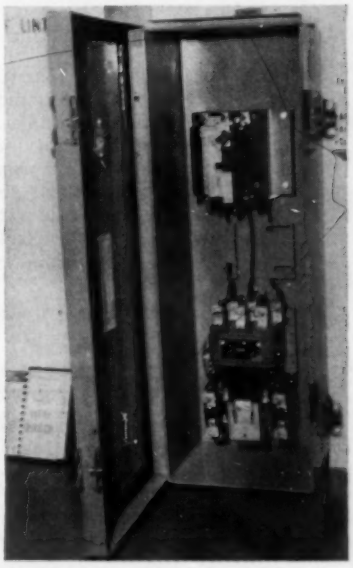
Fire-Door Control

An electric fire-door control was shown by Clark Door Co., Newark, N. J. The door closes automatically when flash fires occur.

The control is available for sliding doors, inclined or level track, with single or double sliding. A link that breaks at 160° F. is supplied with the control. The door can be operated manually without disturbing the control. (G-222)

Metallic Yarns

Lurex MF and MM yarns were shown by Dobeckmun Co., Cleveland, Ohio. Lurex MF has a central layer of aluminum foil with a protective film of Mylar and is intended for a decorative yarn where exceptional brightness is required. The yarn is also soft and abrasion resistant. Lurex MF is suited for fabrics that are wet-processed. (G-223)



Electrical Starters

A magnetic combination starter with a heavy-gauge case with no knockouts was shown by General Electric Co., Bloomington, Ill. The starter is used with a fused disconnect or a circuit breaker.

The case has a neoprene gasket inside the door and two latches outside. The door can be locked closed with the control either on or off.

A heavy-duty contactor is available with two or three overload relays. Four auxiliary circuits may be added for pilot lights, etc. (G-224)

Hand-Operated Oiler

A hand-operated oiler that screens the oil for reuse was shown by Ridge Tool Co., Elyria, Ohio.

Used for pipe-cutting machines and similar jobs, the dies can be flooded with cutting oil that is returned by means of an easily operated hand pump. G-225)

Multipurpose Lubricants

Multipurpose lubricants for heavy-duty applications were shown by Pure Oil Co., Chicago, Ill.

Called Poco PB lubricants, they have a lead base and are fortified with additives to insure tenacious film strength. The lubricants are noncorrosive, nonfoaming, and resistant to oxidation and readily separate from water. (G-228)

Electric Truck

An electric truck, the Warehouser, was shown by Yale & Towne Mfg. Co., Philadelphia, Pa., and Coleman Co., Greenville, S. C. The truck permits narrow-aisle operation to leave more space for storage.

The truck is available with standard or tilting forks and is arranged for the driver to stand during operation. (G-231)

Electrical Controls

A complete line of electrical controls was shown by Cutler-Hammer, Inc., Milwaukee, Wis. The items introduced were (1) a series of a.c. combination starters, (2) a card-controller, (3) shipper-rod switch, (4) a.c. magnetic starter, and (5) several types of push-button units and stations.

Action displays of a lint-tight loom switch and a dynamic-braking controller with quick stopping were part of the exhibit. (G-226)

Pneumatic Control

An auto-pneumatic control for correcting operating speeds for changes in flow, heat, liquid level, pressure, temperature, color, tension, etc. was shown by Reeves Pulley Co., Columbus, Ind.

A diaphragm measures the pressure or height of liquid, for example, and the measurement is translated into an air-pressure signal. (G-229)

Enclosed Textile Motor

A totally enclosed textile motor was demonstrated in a cut-away model by representatives of Louis Allis Co., Milwaukee, Wis.

The motor is said to have 12 important features designed for textile service; one of the most important features is a housing free from obstructions that would catch lint. (G-232)

Temperature Controller

Fenwal, Inc., Ashland, Mass., showed the Model 560 electronic temperature and indicating controller. The controller maintains temperatures on such machines as Turbo staplers and hosiery boarding equipment to ± 1° F. up to 600° F. The thermistor enables a sensitivity to 0.25° F. and makes a simple null balanced-bridge circuit possible. (G-227)

Soda-Base Grease

A grease especially suitable for use in ball and roller bearings was shown by Pure Oil Co., Chicago, Ill.

The grease has a melting point in excess of 275° F. and has a high film strength and mechanical stability. Called Hypronox, the grease contains oxidation inhibitors and, it is claimed, will not harden or break down in service. (G-230)

Rust Remover

An alkaline rust remover, called Rustripper, was shown by Oakite Products, Inc., New York, N. Y.

The product is designed for tank application and is recommended where acidic cleaners are unsuitable.

Concentrations of 8 to 16 oz. per gal. of the product are suggested; the parts to be cleaned are immersed in the solution and kept at 200 to 210° F. for as long as necessary. (G-233)

CONTINUED ON PAGE 236

Testing Equipment

Electronics in testing equipment is becoming more commonplace. Many practical applications of these instruments were apparent at the show.

Several of the instruments are now designed to be used on the mill floor where they are connected to the processing machine and used to adjust the machine or for checking results of processes.

The use of these instruments will continue to grow as new applications are found for them. However, a big educational program will be needed to inform management and worker of the great advantages in this new science and the easiest methods to obtain the best results.

Yarn Inspector

An automatic yarn inspector, shown by Lindy & Co., Inc., Mineola, N. Y., is a variable-sensitivity optical and electronic device for measuring variations in yarn diameter on single ends or on multiple ends.

The device is placed in the path of the warp sheet between the front reed and the beam. The warp runs through the photo-electric eye, and a fault in the yarn stops the machine. (G-234)

Moisture Meters

The K2 moisture register meter, shown by Moisture Register Co., Alhambra, Calif., is designed for use on cones, beams, rolls, or stacks of fabric. Model PD-1 is used to test loose or compressible materials. The K2 gives a penetration of 1 in. and gives accurate measurements in 3 secs. without marring the sample. A light flashes on the meter case of the PD-1 when the correct pressure is applied. The penetration is 3 ins. (G-235)

Fabric-Fault Detector

A photo scanner for detecting faults in fabric was shown by Lindly & Co., Inc., Mineola, N. Y. The device is particularly useful on tricot machines.

The unit is suspended over a machine, and a powerful light beam is aimed at the fabric. The unit is stationary, but the lens swings the beam from selvage to selvage. A complete cycle or two traverses of the cloth width is completed in 1 sec. Two faults stop the machine. (G-236)

Top-Roll Analyzer

An instrument that analyzes taper, run-out, diameter, and smoothness of operation of spinning rolls was shown by Progressive Engineering, Inc., Rockland, Mass.

The rolls are placed in the analyzer under simulated operating conditions, and any slight variation is shown on the indicator dials. The analyzer is adaptable to all sizes of rolls, both antifriction and solid. (G-237)

Picker-Lap Tester

An electronic picker-lap tester equipped with a Uster Varimeter head for measuring short-term variation was demonstrated by Thomason Textile Service, Inc., Charlotte, N. C.

As the test lap is unrolled, it passes through the measuring head; and uniformity is recorded through an existing Uster evenness tester or through a recorder supplied with the unit. (G-239)

Testing Machine

Model CET, shown by Scott Testers, Inc., Providence, R. I., is used for tensile, compression, and hysteresis tests from 0 to 2,000 lbs. The specimen is stretched by a twin-screw drive. For hysteresis tests, the cyclic loading is done automatically with instant reversing at selected setting points. Stretch can be magnified, and any portion of the curve can be enlarged. (G-241)

Tension Recorder

The Tension Recordograph developed by Celanese Corp. was shown by Uster Corp., Charlotte, N. C. The instrument pinpoints the cause of cyclic tensions and has three tension ranges up to 50 lbs. Sensitivity and frequency response are high; and the Recordograph is not affected by dirt, temperature changes, or vibration. All types of roving and yarns can be tested. (G-238)

Range Integrator

A range integrator (arrow) that records peak-to-peak variation and works in conjunction with the evenness tester and recorder was shown by Uster Corp., Charlotte, N. C. Average percentages are calculated automatically. The mobile utility cart shown in the photo holds several Uster instruments and has a large bin for waste. (G-240)

Cloth Tension Control

An electric tensiometer to indicate, record, and control the tension of moving web material or fabric was demonstrated in the booth of General Electric Co., Schenectady, N. Y.

The instrument insures high-quality production because the tension of the web is held constant even if other variables affect the tension.

The tensiometer measures the thickness of fabrics ranging from thin nylon mesh to heavy duty cotton duck. (G-242)

Slasher Tensiometer

A slasher tensiometer shown by Kidde Mfg. Co., Inc., Bloomfield, N. J., prevents a principal cause of streaky fabric in mills that slash yarn on the cotton system. The device is held in one hand while the yarn sheet is run through the instrument, and the tension is recorded. The beam let-offs are adjusted if the tension is incorrect. (G-243)

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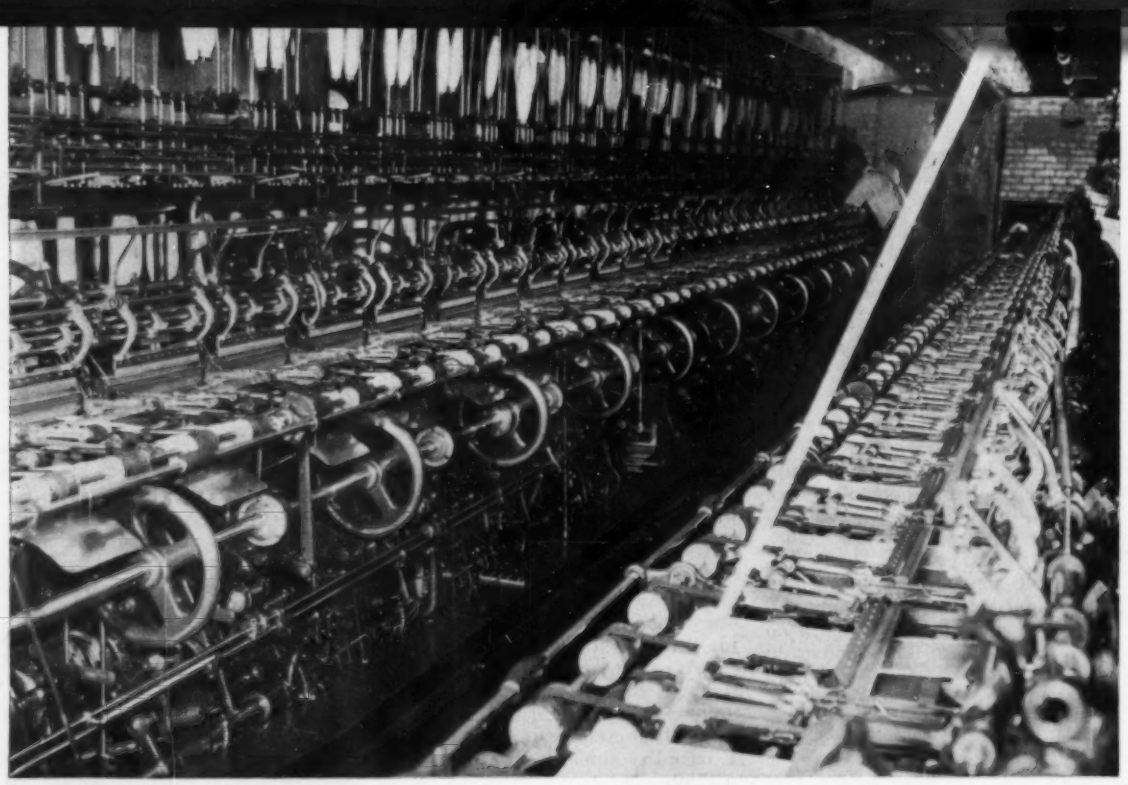


TWO MACHINES, run by one man, are kept balanced for easier operation. The machine on the left has just completed a set, while the other machine is knitting the leg.

Lee Hosiery Increases FULL-FASHIONED Production —

—with fully automatic machines equipped with features that cut down operator attendance and allow one knitter to safely attend two machines

By **JAMES H. BLORE,** Associate Editor, TEXTILE WORLD

Lee Hosiery Mill, Inc., Landrum, S. C., is adding new full-fashioned hosiery machines to increase production. Machines chosen for the job are Reading 100 machines that are equipped with fully automatic features including automatic narrowing heads and automatic friction boxes.

These automatic features have taken enough responsibility from the knitter to allow one knitter to operate two machines. The automatic equipment has also eliminated the possibility of human error in moving carriers and frictions.

The new machines are arranged in units of two. So far, one unit has been installed in a knitting room separate from the main knitting room.

Machines Built in Two Pieces

Each machine was shipped to the mill in two pieces. They were bolted together at the center and were running two weeks after the installation.

The machines have been laid on a reinforced-concrete floor. A ⅜-in. plywood aisle is laid between the machines. There is a 3-ft. gap between the machines at the handwheels.

A double daylight-lamp fixture runs the length of the aisle on each side of the air-conditioning duct. Some of the lamps in the fixtures have been replaced with ultraviolet lamps that help Lee's knitters keep a healthy tan.

Two five-ton Worthington air-conditioning units keep the new knitting room, which eventually will hold four machines, between 82 and 84° F. Baffles on the duct outlets keep drafts from blowing on the knitters and on the machines.

The machines are both 60-gauge with 30 sections. They run 15-den. nylon yarn in the leg and 40-den. nylon in the welt.

Speed Is 100 Courses per Minute

The machines run at 100 courses per minute in the leg, afterwelt, and the second half of the welt. A set of size 9½ stockings is knitted in 32 mins. Each machine knits about 17 doz. stockings each shift.

The knitter runs the machines so that one machine is knitting the leg while the other machine is starting the welt. Most of the knitter's work is done during welt knitting, and the automatic equipment keeps him free from hurrying his jobs on one machine to service the other machine.

If a machine is stopped for 15 mins. for a mechanical adjustment, the other machine is stopped for a similar length of time to keep both machines balanced. If the machine is stopped more than 15 mins., the second machine is kept running as usual.

The knitter's chief jobs now are to clip ends, put in and remove the picot bars, collect and put in the welt rods, remove stockings from the machine, change faulty needles, and keep the machine supplied with yarn.

Yarns Are Magazine Creeled

When a pirn of yarn runs out, the empty pirn is replaced with a full one. The end of yarn on the new pirn is then tied to the end of yarn on the pirn running to the knitting machine.

The 15-den. yarns are generally changed during welt knitting; so the machine is not stopped for yarn changes. Yarn will run from the two pirns for several shifts before the empty pirn needs replacing.

The narrowing heads are racked in and out by a $\frac{1}{6}$-hp. motor that is controlled from a button on the main chain. The main, welt, and splicing frictions are selected from a chain at the center of the machine through electrical controls.

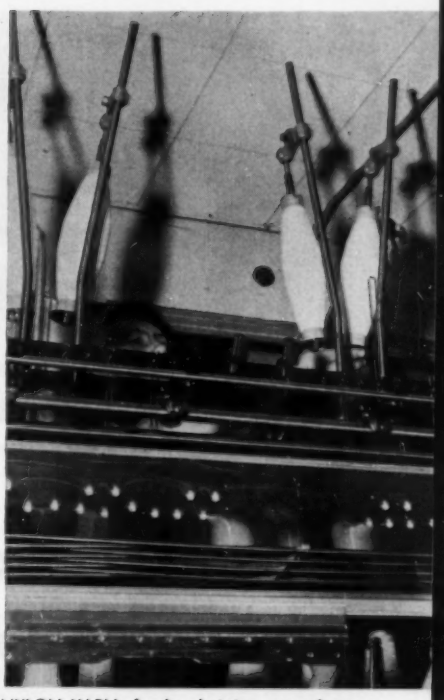
Welt bars automatically move back after the welt has been turned. The knitter does not walk the length of the machine to remove the welt bars. He also puts the welt bars into the start position from a master control at the right side of the machine.

A booth is located at one end of the aisle close to the machines. The knitter can smoke only in this booth, but he can watch both machines while smoking.

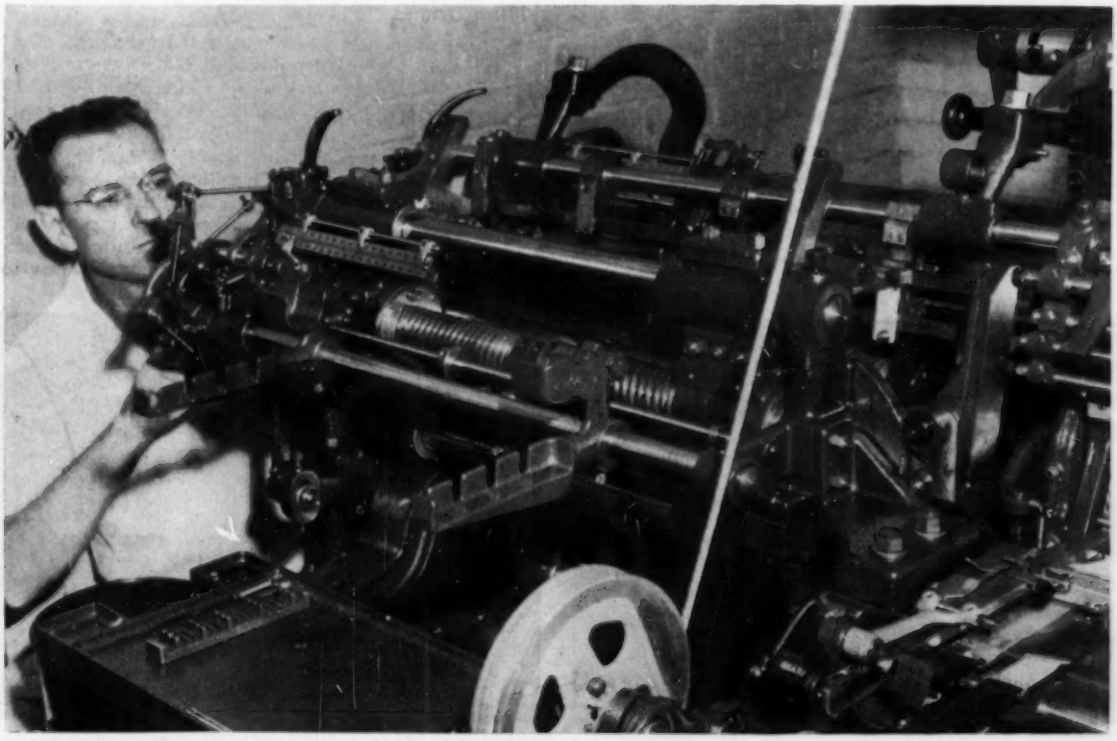
Machines Are Oiled Often

Needles are lubricated two or three times each shift. Other moving parts are oiled daily. The machines are also given a thorough cleaning every three months.

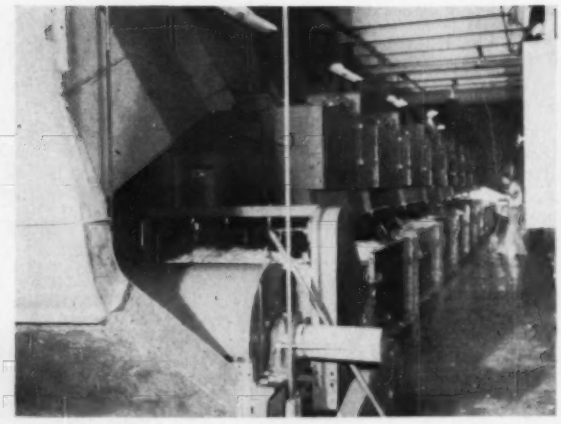
Before the machines were installed, one foreman fixer from each shift spent two weeks at the factory where the machines were made. There are eight other machines at Lee Hosiery, and the foreman fixer on each shift has been able to handle the extra machines with no trouble.



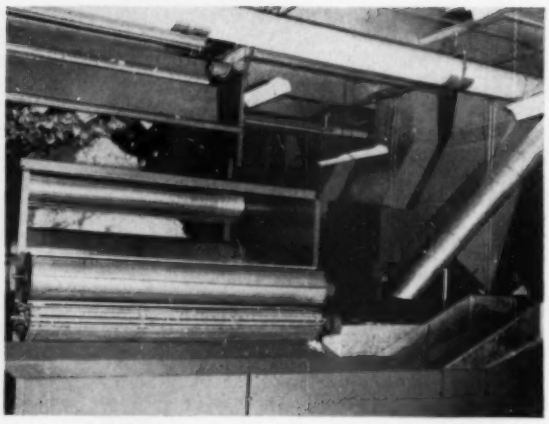
NYLON YARN, for leg knitting, runs from a magazine creel. When a pirn becomes empty, it is replaced with a full pirn without stopping the machine.



NARROWING HEADS are automatically moved by a 1/6-hp. motor controlled from the main chain to reduce human errors and help make the knitter's work easier.



WOOL BLENDING starts at these automatic feeds. Eight feeds spill wool on a 65-ft. apron that conveys the stock to the first picker.



BLENDING BOX holds 13,000 lbs. of wool, which is dropped by 70 reversing distributor rolls controlled by an electronic eye.

Production Gains Momentum At Amerotron's New WOOLEN MILL

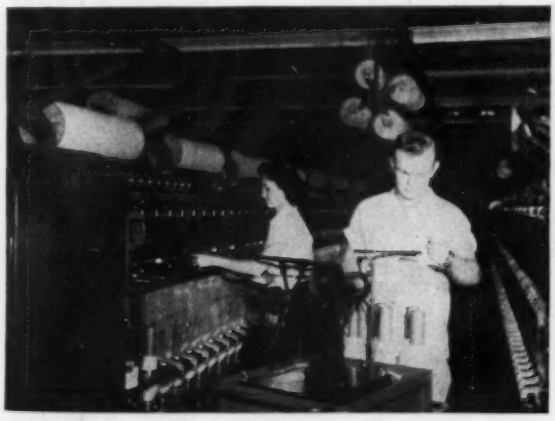
The South's newest woolen plant, at Barnwell, S. C., is today, after a few months in operation, turning out top-quality fabrics. Some of the outstanding features of this modern fully integrated mill are—

- Automatic wool-blending systems
- Latest attachments on cards and spinning frames
- Continuous wet-finishing machines

By **JAMES H. BLORE,** Associate Editor, TEXTILE WORLD

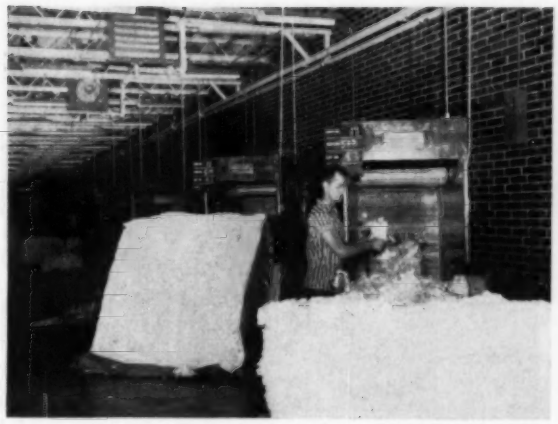
AMEROTRON CORP. started production of wool-suiting materials at Barnwell, S. C., last February. Today, production of top-quality fabrics is steadily gaining momentum with the aid of modern machinery and an eager work force.

A policy was adopted to run machines slowly with ample work assignments during the first months and gradually increase production. This policy is now paying off with fewer ends down, fewer seconds, and better quality than would be expected in a new mill with most help new to

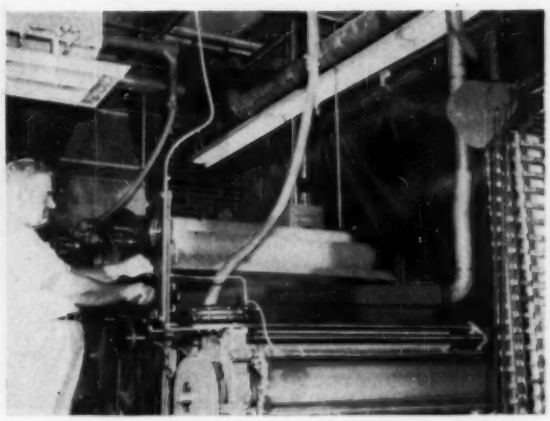


SPINNING FRAMES are checked for yarn size once every 4 hrs. Five bobbins are tested from each frame on a portable reel.

WARPING is done from a magazine creel. The warper runs on rails behind each reel, which is built in eight sections.



BALE FEEDERS are arranged along the wall on the floor above the 24 cards. Wool is fed from the bale to the assigned card below.



CARDS have the latest attachments, including fancy-roll covers that have helped to keep the room free from troublesome lint.

wool textiles.

No expense has been spared to equip the plant with the latest wool-processing equipment. Scoured wool is blended automatically, cards and spinning frames have the latest features, and dyeing and finishing equipment is mostly new.

One of the first departments to go into production was the sample section. Located in a corner of the mill, this department is partitioned from the remainder of the mill and set up with complete machinery to produce cloth samples.

Enough material is run through the two Davis & Furber 60-in. cards and the four 120-spindle Whitin spinning frames to produce yarn for two rolls of cloth. The yarn is run on a 48-end high-speed spooler to make warp bobbins. Warps are made up to 110 ins. wide and woven on eight Crompton & Knowles W-3 looms.

All sample machines are regular mill equipment, and they run under mill operating conditions. Records are made of each machine adjustment for each sample lot. These adjustments are consulted when machines are set up on production. When no samples are to be made, the equipment runs on normal production.

The plant, which covers 423,000 sq. ft., is laid out on a single-floor plan except for an L-shaped mezzanine that houses the wool storage and feed bins to the Proctor & Schwartz blending equipment below. Domestic and foreign scoured wools are used, much of which is merino.

Bales are opened opposite eight openings in the floor of the mezzanine. Signs opposite the openings indicate the type and percentage of material for each blend component.

Blend Feeds Are Automatic

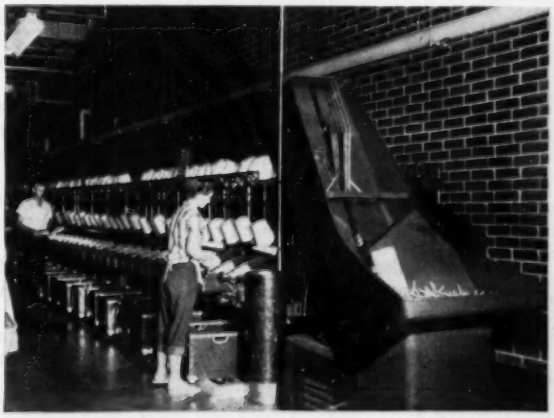
This raw wool drops into one of the eight No. 655 blending feeds arranged side by side on the floor below. Each feed is set to deliver the exact percentage of blend. A Micro switch opens each hopper at regular intervals to allow a portion of the stock to drop diagonally on a small apron below each feed.

Below the small aprons is a 65-ft. floor apron that travels in an opposite direction to the small aprons to convey the material to a No. 512 Super picker. Two spray nozzles at the center of the floor apron spray the stock with emulsion. Five nozzles do a similar job just before the stock enters the picker.

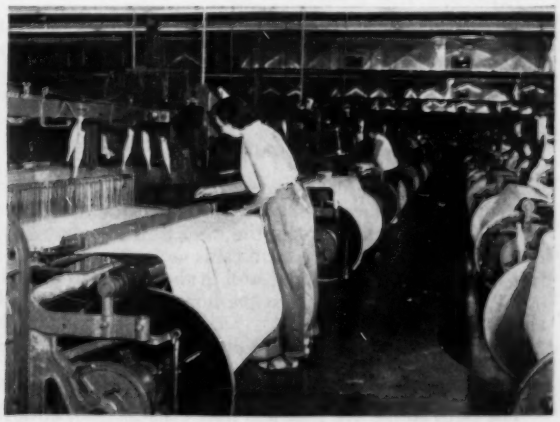
The picker cylinder has cockscomb teeth that bite through several layers of the blend. About 3,000 lbs. of material pass through the picker an hour.

Further blending takes place in a huge blending box that holds up to 13,000 lbs. of stock. This stock is automatically conveyed from the picker to a ceiling condenser through a pipe and dropped on a roller distributor over the blending box.

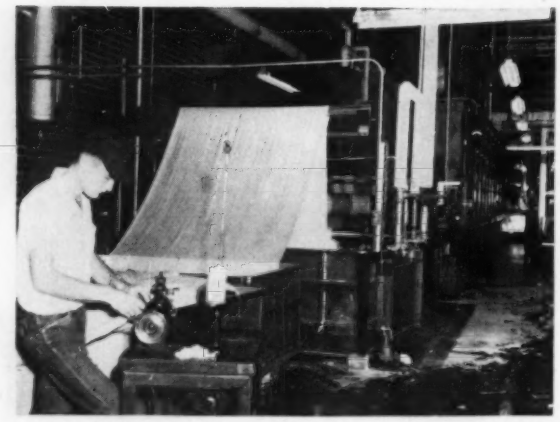
There are 70 rolls over the 70x10x12-ft. high box. These rolls, driven by eight reversing motors, carry the stock



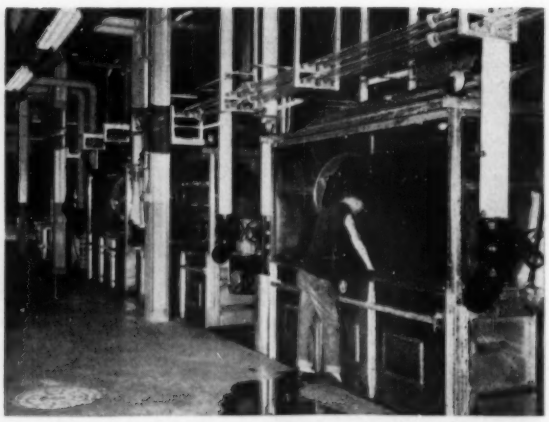
QUILL WINDING is done automatically. The two 75-spindle machines, which run at 4,500 rpm., drop the full bobbins in boxes.



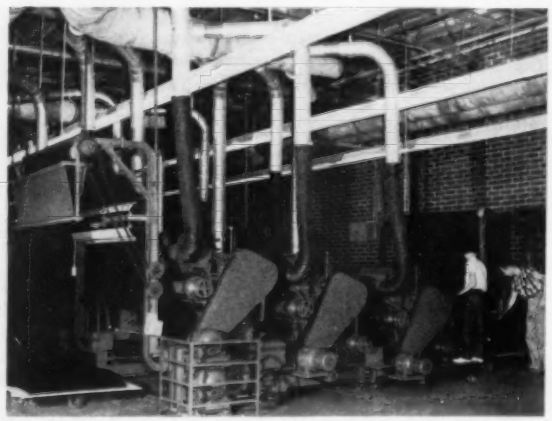
WEAVING of women's dress goods is done on 180 92-in. looms that produce many different types of fabrics.



CARBONIZING is continuous. The fabric is sewed end to end, passed through a chemical solution, dried, and baked.



DYEING MACHINES are all stainless steel. The dye liquors are fed by Pyrex piping from the dye-mixing station above the dyehouse.



SHEARING is one of the many dry-finishing operations. Three-bladed shears remove projecting fibers that are removed by vacuum.

toward the end of the box. When the material reaches the end roll, it breaks the beam of an electronic eye and causes the rolls to reverse.

This reversing action causes the stock to drop into the box below. The process is repeated until the box is full. The floor apron at the bottom of the box then moves at 3 ins. per min. to carry the stock between three breaker rolls that fling the stock on a feed table.

The feed table conveys the stock to a second No. 512 picker, from where the now-thoroughly blended stock is blown to a ceiling condenser located over a Lummus Cotton Gin baling press on the floor above.

Bale Feeders Keep Cards Full

There are 24 bale feeders arranged along the wall of the mezzanine above the cards. The contents of the bales are fed to the feeders that supply the wool to the cards.

The 24 three-cylinder Whitin cards are arranged side by side the full width of the west wall in the main part of the mill. Spring-loaded racks keep the hoppers full of wool at all times.

Perkins burr-crushing rolls are fitted to each card to help remove vegetable matter. These rolls operate at 4,000 lbs. pressure.

The cards are 72 ins. wide and have exhaust fancy covers on the fancy roll and side plates on all rolls. Loose lint is drawn away from the covered fancy by an exhaust system and transported back to the feed along with the selvage waste ends. This system and the side plates have eliminated much dust and lint so common to card rooms.

Each card delivers 144 ends of roving that weigh 63 to 90 grains according to the yarn to be spun. The eight aluminum jack spools, 35½ ins. wide, each contain 18 ends of roving.

Yarn Is Spun on 13¼-In. Tubes

There are 66 Whitin Model-E spinning frames, each with 164 spindles, laid out behind the cards. Each card supplies three spinning frames.

Yarn is spun on 13¼-in. tapered paper tubes that hold 20 oz. of yarn. Up to 215 lbs. of yarn are doffed at one time from each frame. Needle-bearing tension pulleys and antifriction spindles with individual brakes on the 6½-in.-gauge frames help make better yarn.

A Thomatex waste-collecting system that has reduced double ends in spinning takes care of broken ends in the draft and twist zone. There is a suction pipe below each end near the front rolls and one near the top delivery roll.

Waste is sucked into a box at the end of each frame and emptied each shift. The waste is weighed and recorded against the spinner as a quality check.

How Yarn Size Is Tested

A test on yarn size is made every four hours on each frame. Five bobbins from each frame are tested at one time. Yarn is wound from the bobbins on a portable reel that is pushed between the spinning frames. Up to 10 skeins are accommodated on the truck, which is pushed to the laboratory where the skeins are weighed.

After spinning, the yarn is conditioned in live steam for 30 mins. to set the twist and allowed to sit 4 hrs. before winding. Thin places and slubs are removed from the yarn during this process, and the yarn is wound tightly on 3-lb. cones. The slub catchers are set with a gauge according to the size of the yarn being run. Cones are all kept the same size.

Yarn is handled in metal Cargotainers that are collapsed and stored against the wall when they are not in use. A fork lift truck moves several full containers at once.

Materials move in a counterclockwise direction through the plant with no backtracking. There is ample space for material storage in all sections.

Warping is done from four 450-end Reiner magazine creels.

CONTINUED ON PAGE 214

To Keep PICKERS Running—

• Pickers used to run until they broke down, but today management believes in preventive maintenance. Here are some pointers, based on practices in a number of different mills, that may help you reduce picker-maintenance costs and make better laps.

By **WILLIAM G. ASHMORE,** Associate Editor, TEXTILE WORLD

PICKERS are rugged machines; but they require systematic cleaning, lubricating, and preventive maintenance if they are to operate efficiently and produce good laps.

It is a good practice to clean pickers as thoroughly as possible each day and to stop them for an hour or two once a week for a complete cleaning. While pickers are shut down, all hard-to-reach chokes should be removed, eveners blown out and cleaned, and critical parts checked and repaired. The picker-room foreman should be made responsible for this work.

Frequent use of a lapmeter, at least once a week, will often help spot a defective picker in time to prevent serious damage to the machine. At the same time, the production of bad laps will be reduced to a minimum.

A recording lap scale is useful to point out off-weight laps that might slip by the operator. An excessive number of off-weight laps usually indicates that something is wrong with the picker. One mill cut off-weight laps 90% by installing a recording scale.

Lubrication Is Important

Lubrication schedules vary with individual pickers, but a good rule of thumb is to grease ball bearings with a grease gun once every three months, oil plain bearings once a shift, and add oil to sumps for ring-oiled bearings once a week.

Once a month, or more often if you are making too many bad laps, it is wise to check the blending reserve, evener motion, feed roll and bearings, screens, grids, gears, and aprons. Some mills completely overhaul the front end of the picker every three months; however, it usually is unnecessary to overhaul this often if critical parts are checked and repaired weekly or monthly.

Once or twice a year, depending on how much preventive maintenance is done from day to day, pickers should be dismantled to the basic frame and completely overhauled. During the overhauling, all parts should be cleaned with mineral spirits. All settings should be checked and adjusted as the machine is reassembled.

Back-to-Front Checklist

If you overhaul your pickers from back to front, the following checklist*—modified to suit your particular situation—may help you do a better job. The procedure was developed by a mill running ⅞-in. Strict Low to 1-in. Middling Cotton at about 375 lbs. per hr. This mill inspects, cleans, and repairs:

1. Hopper apron
2. Apron shaft and bearings
3. Back-section apron
4. Feed roll and bearings
5. Buckley beater
6. Grid bars
7. Screens
8. Leather
9. Fan blade, shaft, and bearing
10. Repeat items 4 through 10 for middle section
11. Blending reserve
12. Evener motion
13. Calender-roll section
14. Pneumatic rack release
15. Gears and oil holes

Front-to-Back Checklist

If you overhaul from front to back, here's a more detailed checklist* worked out by a mill that runs ⅞- to 1-in. Strict Low Middling cotton at 460 lbs. per hr.

1. Remove all belts
2. Remove cheeks
3. Remove calender rolls
4. Remove cross-drive shaft
5. Remove drop shaft
6. Check, repair, or replace all worn bearings and gears
7. Replace all parts after cleaning, and check for freeness and level
8. Oil all bearings, and check for freeness and meshing of gears
9. Check front screens and bearings
10. Check draw rolls and bearings
11. Check air-control doors for seating
12. Check mote knives and fly bars
13. Check fan shaft and fan balance
14. Check ball bearings on beater and fan shaft
15. Open box on piano evener
16. Check lift pins and plates for freeness
17. Check feed and evener rolls and bearings
18. Check beater lags and settings to feed rolls
19. Check evener cones, belt, belt guide, and bearings
20. Check underneath cones and slides that drive back section
21. Clean and check synchronizer for freedom and smooth operation; repeat for back section
22. Check feed apron to back feed rolls
23. Check feed-hopper bearings, shafts, and aprons

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* *Textile Operating Executives of Georgia.*

At the Perkin Centennial—

AATCC Reports on SYNTHETIC DYES

- A hundred years of synthetic dyes and dyeing techniques were highlighted at the Perkin Centennial celebration and the annual convention of the American Association of Textile Chemists & Colorists early in September.
- Held at the Waldorf-Astoria hotel in New York, the meeting commemorated the discovery of mauve, the first synthetic dye, by Sir William Henry Perkin in 1856.
- On these pages, we publish in condensed form the papers most applicable to the textile industry.

The Olney Award Address—

Better Use of Science Is a Challenge to Textiles

- The 1956 winner of AATCC's Olney Award stated in his acceptance address that . . .

> "The challenge that faces the textile industry today is twofold. First, it must sincerely embrace research as a sound philosophy; and having done so, it must establish adequate facilities for its execution. Second, it must communicate to the scientific and engineering fraternity the fact that it has opportunities unlimited to offer young men who seek a challenging future in their respective specialties."

- Other highlights of the address are presented here.

By **WALTER J. HAMBURGER**

THE OLNEY AWARD, made each year by AATCC in honor of the founder of the association, is presented by Raymond W. Jacoby, left, to Walter J. Hamburger.

The textile industry, whether it likes it or not, is rapidly approaching the time when it will be called upon to produce engineering materials such as actual structural elements composed in large part of orthodox textile fibers, yarns, and fabrics but combined in unique forms that at this writing are certainly unorthodox.

If this statement seems a bit ambitious, there can be no doubt about the fact that some segments of the textile industry have already created a demand for apparel fabrics for which claims are made that place them in a category of engineered materials. "Wash-and-wear," "ease-of-care," "drip-dry," "miracle fabrics," and many other similar connotations have established in the minds of the consumer the facts that such fabrics are indeed available and in many instances that their performance has reached a state of perfection far beyond present practical possibility.

To succeed in this era of expanding science demands imagination, enthusiasm, and application of sound principles. The examples of engineered materials cited above embrace the first two requirements; but the third is somewhat lacking, for the textile industry is not behaving wisely in the matter of research.

Is that because it cannot be research-wise? Certainly not. It has an almost fantastic potential from which to reap the benefits of research, if it will only equip itself before it is too late. Its deadline will be governed by

the available supply of scientific and engineering personnel and the willingness of such personnel to cast their lot with the textile industry in competition with other industries that apparently offer so much more.

Why Scientists Avoid Textiles

These other industries apparently offer so much more only because the textile industry makes no bid for scientific and engineering personnel. As a result, it has not made known, through any concerted effort, the overwhelming opportunities available to young scientists and engineers in all branches of the textile industry.

Therefore, a very poor opinion of the textile industry prevails in the minds of available young men and women. To them the textile industry is a blind alley of employment for many reasons:

1. As an industry serving one of the three necessities of life—food, clothing, and shelter—its record of research expenditure is disappointing.
2. The textile industry is unstable profitwise and as such in past decades has not made a good showing.
3. Management on the whole is not research-conscious or research-minded.
4. To join the textile industry is to allow the sharp edge of their specialties to become dulled by lack of forward-looking research programs.
5. The experience gained in the textile industry will be no credit if they later change to employment by another industry.
6. There is little chance of advancement to the management level where research is not sincerely a part of the company policy.
7. And of greatest significance: the average science or engineering graduate today has no idea of the scope of textile science as a field of specialization. (But this is not surprising, since nowhere is he told of its great opportunities for achievement.)

The Industry Is Waking Up

Considering the foregoing, it is rather certain that if the textile industry wanted scientists and engineers as of today it would be difficult if not impossible to recruit even the barest quota of scientific personnel in the face of other competition. Anyone who doubts these facts need only review the want-ad portion of the financial section of the *New York Sunday Times* to find that not one ad appears from the textile industry.

But the textile industry is beginning to recognize that sound research programs are more and more becoming an absolute necessity for survival. One of the large textile companies that discontinued its development-research activities after World War II is now taking active steps to build a properly balanced research program that can most effectively be integrated into its widespread operations. The program contemplates research activities within the organization as well as research activities with consulting research laboratories.

Other members of the textile industry are surveying the problem as it applies to individual company requirements, and of course those relatively few companies that have well-conceived and efficiently operating research units are striving to keep their organization tuned to the highest pitch of modern scientific methods and equipment.

Effect of Machine on Fiber

The requirements that are now and in the future will be demanded of producing equipment introduces an entire new branch of textile science; namely, that which deals with the reaction of textile materials with processing-equipment elements at ever-increasing operating speeds. This phase of textile research, sometimes referred to as "dynamics of machinery," is engaging the keen interest of imaginative researchers everywhere.

Whether the problems of this new branch of textile research will be dealt with by the machinery manufacturers or by the textile-producing segment of the industry has not yet been established; but the need is so great, both from a quality basis and from an economic basis, that its introduction into

CONTINUED ON PAGE 218

Test Methods for COLORFASTNESS

A Century of Progress

By M. L. STAPLES

The first recorded test for colorfastness was developed in France by Charles Dufay about 1733. According to his test, a dyed fabric was boiled in alum, soap, and tartar; and the effect of this treatment gave an indication of the fastness of the dye and the category of the dye used.

Dufay also described a test for determining the influence of light on dyed fabric. In this test, the fabric was exposed to light for 12 days in the summer or 18 days in the winter. If the color was unchanged, or nearly unchanged, it was classified as fast; if it was almost bleached, it was classified as fugitive. One of Dufay's most fugitive colors was used as a control.

From Dufay until the use of synthetic dyes, following Perkin's discovery, variations and refinements of Dufay's work were carried out; but it was the coming of faster dyestuffs toward the end of the last century that really focused attention on the assessment of colorfastness.

Modern Tests Begun

The first serious attempt to clarify the confusing picture of colorfastness was begun in 1911 by a committee appointed by the Section for the Chemistry of Dyeing and Textile Industries of the Society of German Chemists. The first report of the committee, published in 1914, described fastness tests for cotton and wool. Later revisions extended the test methods for other fibers.

From that date until the present, societies of textile chemists in nearly every textile country in the world have contributed to better methods for evaluating colorfastness. Because of the importance to the consumer of fastness to light, washing, and perspiration, these properties received more attention than any others.

In the late 1930s, efforts to develop international standards were begun; but before agreements could be reached, World War II put an end to them. After the war, efforts were resumed; and in 1947 the International Organization for Standardization was started. Through this organization, international agreement has now been reached on more than 20 different colorfastness test methods.

Evaluation of Colorfastness Tests

By DR. P. W. CUNLIFFE (Great Britain)

The daylight test for colorfastness is regarded in Europe as being of greater importance than a fading-lamp test, mainly because a suitable artificial light source is not yet freely available. The essential features of the international daylight test are:

1. That specimens should be exposed to daylight with eight blue wool standards behind glass for 24 hrs. a day at any time of the year.

2. That specimens should be evaluated mainly on a full fade.

This test is generally regarded as satisfactory, with the exception that Standard No. 6 is not quite fast enough.

Daylight Test Investigated

An extensive investigation of the daylight fastness test has been made and these conclusions reached:

1. In most cases, the same results should be reached regardless of when or where the specimens are exposed.

2. If the rate of fading depends on the moisture content of the sample (for example, some of the azoic combinations), different results will be obtained in different parts of the world. Many dyed and printed fabrics fade more quickly under the cloudy skies of northern Europe than in sunnier lands such as the United States.

Fading Lamps Undependable

Investigation of fading lamps has led to these conclusions on why their results vary so much:

1. The wave lengths that cause fading depend on the color of the specimen and its lightfastness. Fugitive dyes are faded mainly by visible light, while fast dyes are faded mainly by violet and ultraviolet light.

2. Any attempt to equate 1 hr. of lamp exposure to so many hours of sunshine is misleading.

3. The chief cause of irregularities is the effective humidity during exposure. Most fading lamps are drier than British daylight, and some lamps are much drier than others.

Efforts are now being made to stimulate the effective daylight humidity.

Weathering Tests Are Satisfactory

Studies of weathering tests have led to the conclusion that a Weather-ometer based on the carbon arc is satisfactory for measuring resistance to weather. This conclusion was influenced by two considerations: first, there are no suitable standards that would permit a natural weathering test; and second, natural conditions vary so widely.

It is recommended that the dry P.S.O. Daylight Standards in a Weatherometer be adopted immediately. All fabrics receiving a high rating in the Weatherometer have proved satisfactory in use, and photochemical considerations show that the method is essentially sound.

Fastness to Perspiration

Many tests over many years indicate that human perspiration in the majority of cases is acid in reaction but may, in a few cases, be alkaline. With the present state of knowledge, it seems desirable that two artificial perspiration tests—one acid and the other alkaline—should be used.

An important constituent of perspiration is common salt. Although salt is present in a concentration of about 3 parts per 1,000, such a salt solution will not cause the change in dye shade that perspiration will. A solution of about four times that strength is required.

As a result of investigations, tests for perspiration fastness have been proposed to the International Standards Organizations, but action on the proposal is still pending.

Water and Light Tests Get Attention by AATCC

By CHARLES A. SYLVESTER (United States)

Since its organization in 1922, the AATCC has had the development of test methods for evaluating colorfastness as one of its principal objectives. In the 1930s, a series of washfastness tests was set up for use in evaluating washfastness. These tests were the old Nos. 1, 2, 3, and 4.

But changes in laundering methods made these tests too mild for predicting colorfastness of dyed fabrics in use, and a new series—called 2A, 3A, and 4A—was devised to meet the new requirements.

Washfastness Test 3A

The first of the three new accelerated tests was Washfastness Test 3A. The laboratory test finally adopted specifies a washing temperature of 160° F. It gives results in color loss and abrasion approximately equal to five average commercial or home launderings without chlorine.

The accelerated tests are run in the Launder-Ometer, in which stainless-steel tubes 3½x8 ins. are used instead of the glass jars used in the old Test 3 in order to get the proper abrasion of the sample.

Washfastness Test 4A

The 4A test was based on the median amount of color removed by laundering a series of dyed fabrics with white-work formulas. Laundering temperature was 160° F., and the fabrics were bleached with 2 qts. of 1%-available-chlorine bleach per 100 lbs. of load, as specified by the American Institute of Laundering.

Washfastness Test 2A

The 2A test was based on the color loss of a range of dyed fabrics laundered at 100° F. with neutral soap.

These three washfastness tests produce in 45 mins. the color loss that results from five launderings by the three types of washing formulas generally used in home and commercial laundering. They are applied to all fibers. Tests have indicated that the use of detergents or the presence of brighteners do not affect the results.

Dry-Cleaning Tests Improved

Present testing methods for colorfastness to dry-cleaning are satisfactory for assessing the effect of the dry-cleaning solvent on fabric colors, but they are not adequate for the abrasive action of the dry-cleaning process.

A new test that reflects both the chemical action and the abrasive action is being investigated. It is run in the same equipment as the washfastness tests, and results so far are promising.

Two changes in dry-cleaning practices in the U. S. have been taken into consideration in this test: (1) the increased use of perchlorethylene and (2) the "charged system" tech-

niques incorporating water and detergent in dry-cleaning solvents to eliminate the need for wet-cleaning methods for heavy soil. The new dry-cleaning test, therefore, will not include a wet procedure as present tests do.

Lightfastness Tests Studied

Colorfastness to light has received considerable study. For several years AATCC has been studying the conditions that contribute to fading in sunlight and artificial light. Besides the investigation of fading in a range of test methods, work has been done also on the effects of heat and humidity.

Results indicate that:

1. The character of fading is generally the same in direct sunlight and in sunlight under glass.
2. Fading is faster in direct sunlight than in sunlight under glass.
3. The rate of fading is slower under glass 0.25 in. thick than under glass 0.1 in. thick, although the character of fading is the same.
4. Fading is faster 1 in. beneath glass than 3 ins. beneath it, but character is the same.
5. The use of backing for the sample has no effect on fading.
6. Fading is much slower in cabinets facing magnetic north than in cabinets facing magnetic east, south, or west.
7. The rate of fading is the same when samples are horizontal or at angles up to 45° but decreases at angles beyond 45°.
8. Fading is faster in a tightly closed cabinet than in a well-ventilated cabinet.
9. Some dyeings fade considerably when wave lengths shorter than 390 millimicrons are filtered out.
10. Fading occurs less between 3 p.m. and 9 a.m. than between 9 a.m. and 3 p.m.

Variations in temperature, particularly above 150° F., have more influence on fading than variations in humidity between 20 and 50%. Fading is fastest with black panel temperatures above 150° F. with relative humidities above 50%.

Formula for Determining Depth of Shade

By PAUL RABE (Germany)

The fastness of a dye is governed not only by its chemical composition but also by the materials to which it is applied and by the depth of shade. Fastness is therefore a relative term, and there is no such thing as absolute fastness.

As late as 1930, separate standards of comparison of lightfastness were recommended for each type of textile fiber. Also, evaluation of such properties as fastness to water, washing, perspiration, etc. was by comparison with a variety of standards. When a large number of new fibers was introduced and a wide range of blended fabrics containing all the available fibers was made, the comparison of fastness evaluations became an acute problem.

To meet the new conditions, so-called auxiliary standards are used. The first standards of this kind were created at the end of the 1920s by German and Swiss dyestuff manufacturers working together. They were based on dyeings of approximately the same tinctorial strength dyed to a given depth of shade in the main colors used on cotton, wool, rayon, and silk. Fastness to light was tested by dyeing to a standard shade.

New Standards Needed

However, lighter or darker shades could not be compared by these standards. Therefore, the standards are now being broadened to produce very pale shades 1/25 the standard depth and dark shades twice the standard depth.

In checking the depth of dyeings, however, differences in brightness, hue, and the substrate may lead to uncertainties. Therefore a need was felt for some means to measure objectively the depth of shade. The result was a formula expressed as:

$$\frac{10-1.2\,D}{9} \times S + 1.06\,D = \text{depth of shade}$$

where D = darkness degree
and S = saturation

This formula was obtained by determining the color coordinates of the standards in the C.I.E. color space and then establishing the darkness and saturation degree according to the system of the German Color Standard chromaticity diagram.

This formula was first used successfully in dyeing a second series of standards on lustrous viscose material. Later, standards of 1/3, 1/6, 1/12, and 1/25 the standard depth of shade were successfully established.

Color Scales Are the Key To Colorfastness Testing

By DR. HENRY RIS (Switzerland)

In 1935, the German and Swiss dye manufacturers agreed to the eight-stage Blue Scale on wool. This scale is based on a geometric progression in which each step represents fastness to double the exposure to light of the preceding step.

At the same time, a series of standard depths of dyeings was determined. This series, called "auxiliary type" standards, made it possible for the first time to compare lightfastness ratings of all dyestuffs.

The third decisive advance was the development of synoptic scales for measuring staining and change of shade. This concept led to the present two Grey Scales used for measuring and evaluating the degree of staining and the change of shade.

These Grey Scales are also based on a geometric progression, and the standard of fastness becomes more severe as the scale is ascended. With them, it is possible for the first time to define fastness by the degree of contrast and to measure fastness with a standard instrument.

However, these measurements can be made correctly only on flat materials that produce an even shade change over the whole colored surface and an even stain over the white.

Continuous Dyeing Methods

By P. L. MEUNIER

Before 1920, most vat dyeing was done by the jig-reduced method. The dye was reduced with caustic soda and sodium hydrosulfite, and the cloth was passed back and forth through the "vat" on the jig. The absorbed dye was oxidized on the jig in a separate bath containing oxidizing agents such as sodium perborate.

Good color effects were produced, but tightly woven goods often did not have good cover (levelness and penetration). It is a relatively expensive batch process and is now seldom used except for light shades on loose constructions.

In 1908, the pigment-pad-jig-reduction process was used. High-quality dyeings were produced in this two-step process, but the labor cost was high.

In the padding process, the cloth is immersed in a finely dispersed aqueous suspension of the vat dye pigment and squeezed. The cloth may be dried or batched wet on a roll; then the color is developed by reduction and oxidation on the jig.

Besides the high cost, this method has the usual disadvantages of batch processes: (1) shade varies from batch to batch and (2) goods are spoiled at each end of the roll.

Continuous Dyeing Developed

Before World War II several continuous methods of vat dyeing were developed, but after the war research on high-speed methods resulted in outstanding success. Three typical methods, based on increasing the rate of reaction by increasing temperature, now in wide use are:

1. Pigment pad, with continuous reduction in hot boosters
2. Pigment pad, with continuous reduction in Williams Unit
3. Pigment pad, chemical pad, steam process

Reduction in Hot Boosters

In the first process, a dispersion of unreduced dye is padded on and the goods dried or partially dried. Then the goods are subjected at 180 to 212° F. to an alkaline reducing solution containing a small amount of dye to compensate for bleeding off while the goods are in the bath. Rinsing, oxidizing, and soaping are done in the usual manner.

A three-roll padder may be used in the reducing bath. If higher speeds are needed, one or more boosters may be used in tandem to give proper immersion time.

Disadvantages of this method are that considerable skill and experience are needed to get the effects desired, the process is designed for long runs, dyes in the reducing bath are subjected to destructive conditions for longer times, padder speeds must be uniform, liquor level must be automatically controlled, and the caustic and hydrosulfite in the reducing bath must be controlled through frequent titrations.

Reduction in Williams Unit

The procedure for this method is the same as for the hot-booster method, except that the Williams Unit is an excellent means for reductions at temperatures of 200 to 212° F.

This unit is a steam-heated tank with compartments in which the spaces are limited by inserted baffles. The result is that the goods travel through a series of narrow channels to a point that produces the most effective dyeing action.

One or two Williams Units may be used with the padder. For high speeds and vat dyes that require maximum reduction time, two units in tandem give best results.

Pad-Steam Method

The Du Pont pad-steam continuous process represents the third method of continuous vat dyeing. In this method, the fabric is padded with the pigment, dried under controlled conditions, and impregnated with a solution of caustic soda and sodium hydrosulfite. This chemical padding is immediately followed by steaming to reduce and fix the dye.

The Stanfast Method

The Stanfast process used in England consists of impregnating the cloth by passing it downward through a solution of reduced vat dye in caustic and sulfite on the surface of a bath of molten metal at 205° F.

The metal is in a U-tube. At the entering end of the tube, on top of the metal, is the dyebath. At the exit end is a solution of Glauber's salt. Depth of the dyebath is about 8 ins., and the volume is about 1 gal. Additional liquor is pumped as needed from auxiliary steel tanks through a preheater to raise the temperature to 165° F.

After passing through the solution of Glauber's salt, the goods are ready for the washing oxidizing, and soaping operation.

The Bond Machine

The Bond dyeing machine uses perforated plates to pass the fabric through the machine beneath the surface of the dyebath. Dye liquor is pumped through the perforations of the plates onto and through the fabric from both sides.

Tips on Using Sulfur Dyes

By JOHN L. CRIST and DR. RAPHAEL E. RUPP

The sulfur dyes are synthetic organic substantive dyestuffs customarily applied to cotton and other cellulosic fibers from a reduced sodium sulfide dyebath. They are generally insoluble in water and are dissolved and reduced to a leuco compound in an alkaline dyebath containing as an agent sodium sulfide or sodium hydrosulfite.

In 1955, about 25-million lbs. were produced and sold in the U. S. They represented about 16% of the dyes sold; and their money value—about $6.6-million—represented about 3½%

of all dyes produced in 1955.

The blacks, blues, and browns represent the major tonnage used in the U. S. The sulfur dyes are particularly important in producing deep shades in heavy, durable apparel fabrics of cotton and rayon. They may be applied to raw stock, roving, or yarn by package-, beam-, or warp-dyeing methods. Or they may be applied to piece goods by jigs or continuous steamer equipment.

Pointers for Applying Sulfurs—

Calcium Salts

In applying sulfur dyes, care should be taken to guard against the dyebath being contaminated by calcium salts. These salts will precipitate as calcium compounds and form sludge.

To remove calcium salts, the cotton should be boiled off with a bath containing acetic acid, this bath dropped, and a second bath containing a sequestering agent used.

Package Dyeing

Sulfur dyestuffs exhaust rapidly; so a retarding agent—such as the lignin sulfonates—should be used to obtain level dyeing.

The dyeing cycle should be started at 100° F. and the temperature gradually raised. In some cases, a temperature of 140° F. need not be exceeded.

Jig Dyeing

Dark selvages are the most common trouble in jig dyeing. This defect results primarily from the uneven jig roll; but it is aggravated by such factors as high alkalinity of the bath, lack of reduction, high temperature, and calcium.

Usually soft water and calcium-free salt will eliminate the trouble; but in severe cases it may be necessary to presour the fabric or add a sequestering agent to the dyebath, or both.

Blues may be dyed at temperatures as low as 110° F., greens and browns between 120 and 150° F., and blacks at 190° F. and above.

Beck Dyeing

In the past, sulfur dyestuffs have not generally been applied in becks because exposure to the air caused blotches in the color. Lately, this drawback has been avoided by some dyers by the use of low temperatures (110 to 140° F.) and the liberal use of low-alkalinity, high-reducing sulfides and a high concentration of calcium-free salt for exhaustion.

After dyeing, a very good cold-water wash is used before oxidation.

Piece-Goods Dyeing

Williams Units are used for continuous dyeing with sulfur colors. Careful adjustment of feed mixes must be made to hold the shade when two or more dyes of different exhaustion rates are used.

Pad-steam equipment gives good results with sulfur dyes. For many shades, it is enough to pad on the reduced sulfur dyestuff, steam, wash, oxidize, and wash. Padding temperatures should be 80 to 100° F. Because the goods need to be immersed only for a short period, the feeding problem is not very troublesome.

Tightly woven fabrics such as broadcloths, twills, poplins, etc. may give a motley surface. This trouble can be avoided by padding on the color; drying the goods in an air dryer; padding with a solution of low-alkalinity, high-reducing sulfide; steaming; washing; oxidizing; and washing. A 10% loss of color may result, but the fabric has a smooth appearance.

To Remove Sulfur Spots—

Sometimes spots of free sulfur appear on the fabric surface as frosty spots or sparkling crystals. Free sulfur can be detected by pressing the stained (frosty) spot with a hot iron. Sulfur is identified at once by its odor and a disappearance of the spot.

Sulfur spots can be avoided by extra washing before oxidizing. Deposits already in the cloth can be removed with sodium sulfide, a longer time in solution, and higher washing temperature.

Tips on Printing—

Printing with sulfur dyes has been avoided because the dyes etch copper printing rolls.

Two things may be done to reduce this objection.

First, printing from a water-in-oil emulsion. Although this technique avoids corroding the rolls, the character of the emulsion affects the depth and tone of the printed color. Small differences in shade of the emulsion are multiplied in the printing.

Second, all the free sulfur and corrosive compounds in the dyestuff are removed. The purified unreduced sulfur dyestuff is then made into a dispersion of fine particle size suitable for printing. Best printing results are obtained with a glucose-carbonate reduction.

DYES

Development of Fast Dyes

By F. FORDEMWALT

In speaking of fast dyeing, some discussion of what is meant by "dyeing" and by "fast" is necessary. In true dyeing, the colorant penetrates uniformly to all parts of each individual fiber. A dyeing may be considered fast when the color is so permanent as to appear to be a part of the fabric itself and not something added. This requirement means that the color must remain unchanged when subjected to washing, chemicals, atmospheric gases, rubbing, and sunlight.

The best washfastness is obtained with insoluble colors. Since insoluble materials cannot diffuse through fibers, it is necessary to apply the dye in a soluble form and insolubilize it after it has penetrated to the inside of the fibers. This job can be done by the use of mordants; by the generation of insoluble colors; and by the use of colors such as the vat dyes, which, in themselves, have both soluble and insoluble forms.

Chemical combination between the dye and the fiber may involve a salt-forming reaction or hydrogen bonding. The salt link is involved in most dyeing of wool and other protein fibers. Hydrogen bonding accounts for the affinity of some soluble dyes on cellulose. Since cellulose is a relatively fragile polymer, drastic reactions must be avoided.

Fastness to rubbing requires simply that no excess color be left on the outside of the fibers. Dye that is on the inside of the fibers will not rub off or crock.

All other fastness properties, including lightfastness, involve resistance to chemical reactions of all kinds that would destroy the color. Therefore a dye that is sufficiently inert chemically will not be destroyed.

A consideration of different classes of dyes and the periods of discovery shows that the turn of the century was a time of great activity in the syntheses of new dyes. The interest in the poorer dyes has gradually diminished as that in the better colors has increased. As a class, the fastest of all dyes are the vats. They have been developed since 1900.

Synthetic Dyes for Cotton

By DR. D. I. RANDALL

Azo Dyes

Azo dyes account for more than a third of all dye production in the U. S. and are about equal in volume to the vats.

The first azo dyes were basic colors and used the same aromatic amine for diazotizing and coupling. Bismarck Brown, synthesized in 1865, was made from tetrazotized m-phenylene diamine coupled with 2 moles of m-phenylenediamine. Today, it is not important for cotton but is used widely for leather.

Chrysiodine, made by Caro in 1875, resulted from the discovery that dissimilar amines could be used. It consisted of diazotized aniline coupled with m-phenylene diamine.

Direct Azos

The term "direct dye" has little chemical meaning. It is primarily a term for describing an application characteristic and refers to a dye that is soluble enough that it can be applied to a cellulosic fabric in a water bath.

Acid groupings in the dye molecule account for both the high solubility of these dyes and their poor washfastness.

A series of commercially important direct azo dyes, still in use today, was begun with the discovery in the 1880s that tetrazotized benzidine or its derivatives would couple with water-soluble phenols and amines. Congo Red, the oldest direct azo, is produced at the rate of 2-million lbs. a year in the U. S.

By varying the couplers, the direct azos were broadened to include such dyes as:

Congo Orange—made by coupling the tetrazotized benzidine with salicylic acid and naphthionic acid

Diamine Black B—made by coupling tetrazotized benzidine with 7-amino-1-napthol-3-sulfonic acid under alkaline conditions

Diamine Violet N—made by the same coupling under acid conditions

Chicago Blue 6B—made by coupling 8-amino-1-napthol-5,7-disulfonic acid with tetrazotized o-dianisidine

Chrysophenine—based on substituting stilbene for benzidine

Developed Azos

The term "developed dye" refers to a dye developed on the cloth by aftertreatment. An amino compound is diazotized on the cloth and coupled with a coupling component in an aftertreatment.

An example is Developed Black BH. This dye, discovered in 1890, is prepared from the coupled product of tetrazotized benzidine and 1 mole each of gamma and H acid.

With the discovery of developed dyes, the washfastness of the direct azos was improved.

Copper Treatment

One of the aftertreatments developed was the reaction of copper with chelatable dyes such as o-hydroxy azo compounds. After 1890, a wide range of aftercoppered dyes with improved washfastness and lightfastness was developed.

Along with aftercoppering, precoppering also developed. Precoppered dyes containing the metal ion prior to fabric application has been particularly active lately. These direct dyes are dull but have good lightfastness and outstanding fastness to resin creaseproofing finishes.

An example of these chelate compounds is the coppered derivative of tetrazotized diorthoanisidine coupled with Chicago acid.

Azoic Azo Dyes

Azoic dyes do not have water-solubilizing groups and therefore have better washfastness than other azo dyes. They must be developed on the fiber through the action of special diazos and coupling compounds. The cloth is impregnated with a soluble basic solution of the coupler and then exposed to the diazo. These dyes are used widely for bright reds, violets, and yellows.

Because of their brilliance of shade and good fastness properties, the arylamide types are the most important. The first azoic coupler of this kind was the anilide of 3-hydroxy-2-naphthoic acid, sold under the name of Napthol AS. A great number of structures developed, such as Naphthol AS-RL, Naphthol AS-TR, Naphthol AS-SW, Naphthol AS-G, etc.

By broadening the organic bases used for azoic dyes, a very wide range of azoics became available. For example, bases such as Red 2G, Yellow GC, Red ITR, Garnet GBC, Fast Black B, Blue B, and many others are now used.

CONTINUED ON PAGE 220

Dyes for the Hydrophobic Fibers

By H. E. SCHROEDER and S. N. BOYD

All of the hydrophobic fibers designed for apparel use can be dyed with disperse dyes. These disperse dyes enter the fiber by a mechanism involving solution of the dye in the fiber. Polyamide and acrylic fibers can be dyed with acid dyes. Selected acrylic fibers can be dyed also with basic dyes. Electrostatic interactions (salt formation) are involved in the dyeing of polyamide and acrylic fibers with ionic dyes.

The rate of dyeing with both the disperse and the ionic dyes is largely a function of the specific fiber and

the molecular size and geometry of the dye molecules. The polarity of a disperse dye plays a major role in determining the affinity of the dye for a specific fiber, it being essential to preserve a balance between solubility of disperse dye in fiber and its solubility in water. Excessive water solubility will destroy affinity of a dye for the hydrophobic fibers.

Washfastness and Lightfastness

Resistance of both the disperse and the ionic dyes to removal from the fiber by aqueous treatments is directly proportional to the affinity of the dye for the fiber and inversely proportional to the rate of dyeing. The washfastness of the extremely hydrophobic fibers is excellent with all of the dyes that are applicable.

The photochemical decomposition of a dye on a fiber is a reaction of the electronically excited dye molecule with the fiber and/or other elements of the environment. Hence, lightfastness is a characteristic of the particular dye-to-fiber system.

Many correlations of affinity and fastness properties with molecular structure can be drawn. Affinity is prompted by relatively high ratio of mass-to-polar groups in both disperse and ionic dyes, the precise relationships varying with the individual fibers.

For the hydrophobic fibers, small molecules, roughly linear in shape, afford the most satisfactory results. Fastness to washing, sublimation, and dry-cleaning are all favored by an increase in molecular size and relative decrease in solubility in water or solvent.

Fastness to light presents a more-complex problem. Correlations can be made showing that amino groups in dye molecules exert a deleterious effect as they become more basic; this effect can be corrected by acylation, arylation, or introduction of an electron-attracting group in an ortho position.

By proper application of all these principles to the synthetic fibers based on polyacrylonitrile and polyethylene terephthalate, it has been possible to achieve a combination of fastness and appearance unequaled by the older natural fibers.

Dyeing Polyacrylic and Polyester Fibers

By W. R. REMINGTON and H. E. SCHROEDER

Polyacrylonitrile fibers can be dyed with anionic and cationic dyes, if sites are present. They can also be dyed with disperse or nonionic dyes.

It has been found possible to provide sites through modification of the polyacrylonitrile either in its preparation or after it has been converted to a fiber. Thus, copolymerization of acrylonitrile with vinyl pyridine affords basic groups that on protonation act as cationic sites for the dye anions. Equilibrium dyeing studies confirm this picture.

In fibrous forms, polyacrylonitrile can acquire cationic sites through treatment with cuprous salts that are believed to form complexes of the type $RCN \rightarrow Cu^{+}$ with cyano groups in the fiber. The fiber is then colored by an ion-exchange reaction involving replacement of colorless anions by the more-affinitive dye anions. A similar general picture for salt formation on anionic sites exists for absorption of dye cations.

Disperse Dyes

In contrast, disperse dyes, which are used on all common fibers except cellulose and wool, require no specific dyeing sites. In the case of polyethylene terephthalate, a study of the equilibrium partition of pure dyes between the fiber and aqueous solution gave a straight-line plot characteristic of a process of simple solution. The dyeing reaction therefore involves simple solution of dye in the fiber.

In mixtures of dissimilar dyes, the individuals are absorbed independently as though the other compound was not present. Although the fiber cannot have specific sites for the dyes, there are probably significant dipole-dipole interactions between dye molecules and the polymer chains.

The rate of dyeing of polyethylene terephthalate tends to be inconveniently slow under ordinary dyeing conditions, but can be accelerated by an increase in temperature or the use of organic compounds called carriers. These generally aromatic molecules are effective by increasing the diffusion rate of dye through the fiber. Their effect is shown to be independent of carrier structure but proportional to the number of moles of carrier dissolved in the fiber.

Solution-Dyeing Man-Made Fibers

By C. E. COKE

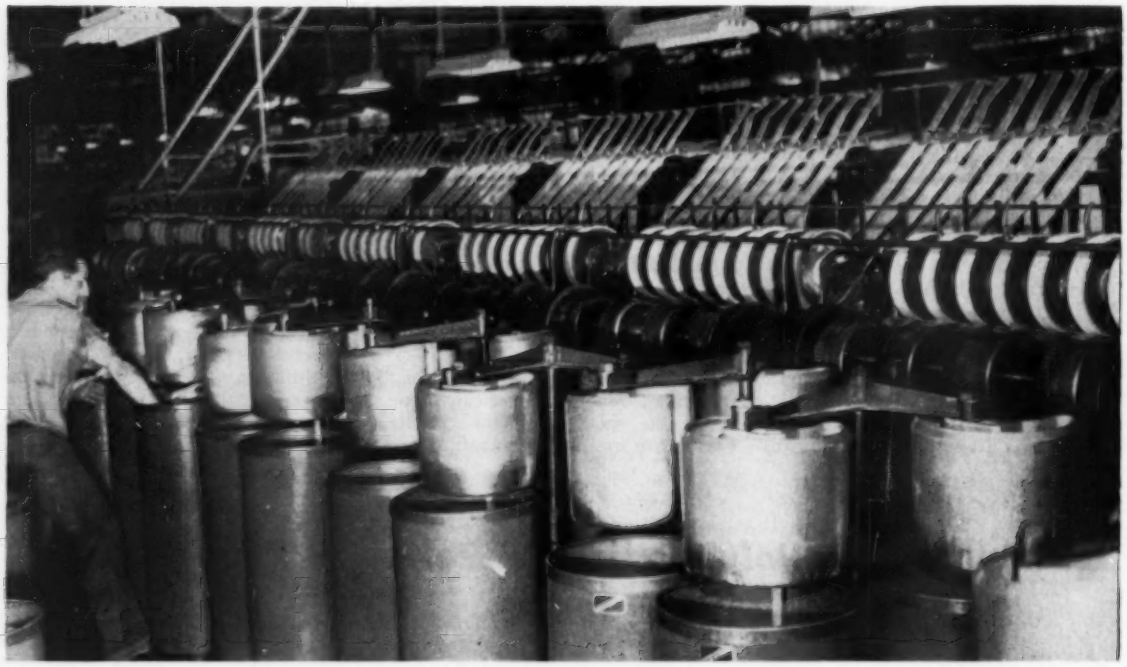
Man-made fibers generally require coloration for commercial purposes. The colored fibers discussed in this paper are produced by incorporating into the liquid fiber dope, before spinning, a pigment or coloring material. These fibers are called spun-dyed.

The earliest references to spun-dyed commercial yarns was in 1903.

The pigments employed are manufactured under rigid specifications. Tremendous strides have been made in dispersing the pigments used in dope dyeing. Particle size and shape are important to prevent clogging of filters and spinning jets. Particle size should be less than one micron. Coarsely dispersed pigments usually produce an undesirable dulling of the color.

The surface color of many pigments is different from the transparent color. This becomes increasingly evident with increasing particle size. Variation in shape of the pigment particle has pronounced effect on the color.

Pigments, to be practical, must have high tinctorial value in low concentrations (0.5% to 3% on weight of the fiber substance). Improved dispersion of the pigments leads to improved luster. The pigments must withstand manufacturing processes involving contact with the chemicals used in producing the fiber or the high temperatures used in melt-spinning of such products as nylon and Terylene.



FINAL DRAWING produces material that weighs 14 oz. per 100 yds. A color system is carried through all drawing operations to assure good blending.

Carpet-Tufting Yarns From SOLUTION-DYED RAYON

- Lehigh Spinning Co. has found that carpet yarns made from solution-dyed rayon staple are fully resistant to fading and save time in finishing operations.

- This Pennsylvania mill, first in the business, has now ironed out technical difficulties and is producing carpet-tufting yarns from solution-dyed rayon on a modified jute system.

By **JAMES H. BLORE,** Associate Editor, TEXTILE WORLD

CARPET-YARN MANUFACTURING has been through some revolutionary changes during the last five years. New materials and new processes, spurred by the growing tufting business, have been introduced. The latest material to be used is solution-dyed rayon staple.

Lehigh Spinning Co., Allentown, Pa., has been processing rayon staple for several years, [see TEXTILE WORLD, June, '54, p. 76]. Solution-dyed staple was introduced at Lehigh early this year. Some difficulties were encountered when the colored material was first run; but now it runs smoothly through the mill, and most of Lehigh's production is now in this new material.

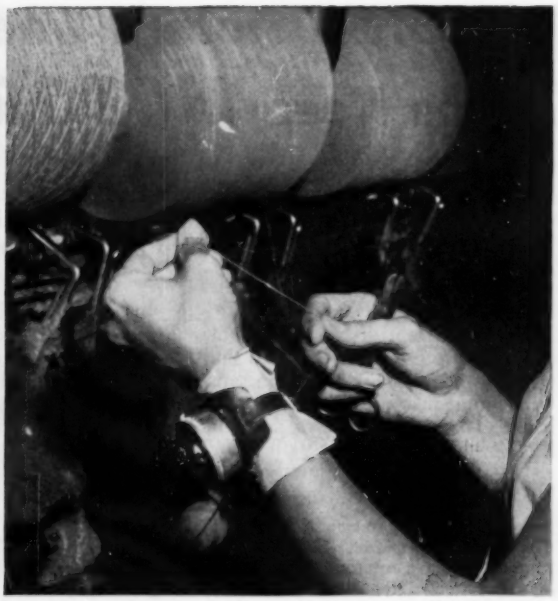
The stock used is crimped 15-den. semidull viscose rayon that is cut to 5-in. staple. There are 20 basic colors, but many other shades are made by blending these colors.

Even when solid shades are run, 20 bales are put down in a mix to provide a uniform blend of shade and fiber. Four conveyors in the blending room feed the blower systems to each of the four card sections.

The bales are put down on either side of a 30-ft. conveyor belt, and a tuft from each bale in turn is fed by hand to the belt. The belt conveys the opened-out material to a fan, which blows the stock through ducts to a stock bin near the cards.

Because no wet-finishing treatment is given to carpets made from solution-dyed yarns, no oil is added to the stock; and care is taken to keep the material clean at all stages of operation. Because of the long length of staple,

DOFFING from spinning frames is quickly done with an extra rail, which is tilted forward. The regular rail is then put in position.



YARN has no knots. All ends are spliced after the ends are cut and thinned. The applicator is strapped to the winder's wrist.

little trouble is encountered from colored lint, although cleaning equipment is used over the cards and drawing frames.

Material Is Processed in Units

Processing the colored stock on Lehigh's unit system further reduces the danger of dark-colored lint contaminating light shades. Rather than have separate card rooms and spinning rooms, Lehigh prefers to process its material in compact units. This system also means easier handling and a better control of quality.

Each unit consists of three cards; four sets of drawing frames; and spinning, winding, and twisting equipment. The yarn-producing machinery was made by Fairbairn, Lawson, Combe & Barbour to process jute; but it has been modified in the mill machine shop to process rayon and synthetics.

The cards deliver about 220 lbs. of sliver per hour on a rotating base plate. The sliver, which weighs 10 lbs. per 100 yds., is coiled into a pile weighing 75 lbs.

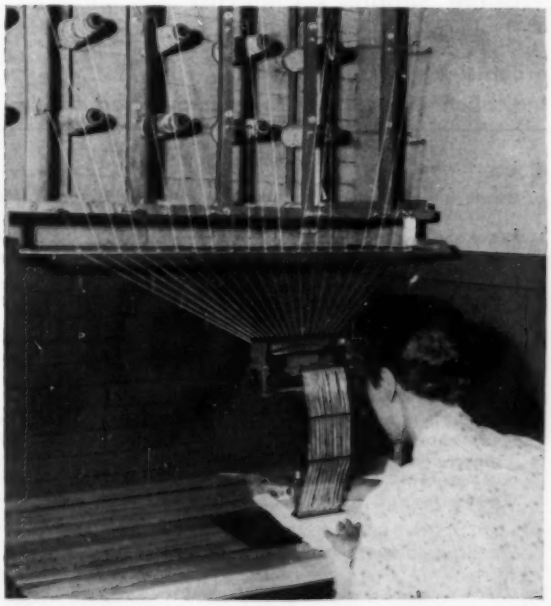
Four card slivers are fed to each of the three heads of the drawing frame and given a 4-to-1 draft. Drafting is done on individual ends, and each end is controlled by an electric stop motion.

Between the front and back drafting rolls, the sliver is controlled by faller bars operating between the two rolls. The material from the first drawing frame falls into 36x24-in. sliver cans. These cans are rotated by the turntable one revolution clockwise and one revolution counterclockwise to keep twist from entering the sliver at this stage.

Color System Used for Blending

A color system assures good blending. Each can from the first drawing frame has a painted strip around the top. One can is painted with a red stripe, another with a blue, and the third with a white stripe. Each can is put behind a different head at the next operation. This system is carried through to the final drawing operation.

Each head of the second drawing frame processes sliver from six cans from the first drawing operation, while the



SMALL TUFTING MACHINE is used to test yarns made from solution-dyed staple to evaluate the final appearance of tweed yarns.

final drawing operation has two ends up at the back of each head. All four drawing frames have the pin controls between the front and back rolls, and the pin spacing on the final operation has about 10 pins per inch.

The sliver delivered by these frames weighs about 14 oz. per 100 yds. It is fed into 16-in. cans, which are doffed one at a time and put up at the back of the spinning frames.

Yarn is spun with about 4.75 tpi. on double-ended

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Trouble Shooter's Checklist Helps Keep MOTORS Running

• Because group drives are being replaced to a large extent by individual motors, the job of the electrical trouble shooter is very important. Here's a motor checklist to help the electrician keep the motors running.

IF SQUIRREL-CAGE INDUCTION MOTORS are kept dry and reasonably clean and are given an occasional shot of lubrication, they will perform satisfactorily for many years. But a motor breaks down occasionally, and the trouble shooter must be skilled and alert to prevent a costly shutdown.

Based on a paper presented by H. S. Colbath, plant engineer, Bibb Mfg. Co., Macon, Ga., at a meeting of the Textile Subcommittee of the American Institute of Electrical Engineers at Raleigh, N. C.

In addition to the following checklist, other troubles develop with induction motors such as: shaft breakage from fatigue, misalignment, badly cut keyways, burn-outs from bad insulation, foreign matter between the rotor and stator, sprinkler heads wetting the insulation, flying metal parts hitting the ends of open motors, etc.

In addition, motor manufacturers make mistakes: poor insulation; screw holes tapped too large or too small; wires too small; bad bearings; and bearing housings bored too large for proper bearing clearance, which allows excess creeping and wears out the end.

When this trouble occurs, call your motor manufacturer immediately so that he can correct the trouble.

A good trouble shooter is the most valuable man in the electrical department of a mill. He must know the electrical circuits and the electrical equipment and its functions.

The following checklist gives the most-common motor troubles, the causes, how to recognize them, and how to repair them.

Trouble Shooter's Checklist

Trouble: Motor will not start
Indication: No current flowing; overload tripped

Cause	Remedy
a. Overload control tripped	Wait for overload to cool; reset if not automatic
b. Power not connected	Connect power
c. Faulty fuses, low voltage	Test fuses and voltage; correct and renew blown fuses
d. Wrong control connections; loose terminal; bad connection	Check control diagram; tighten connections
e. Driven machine locked or stiff	Disconnect motor from machine; if motor starts and runs satisfactorily, check machine
f. Open circuit in stator or rotor winding; short circuit in stator winding; winding gounded; stiff bearing; grease too stiff	Check for open circuit, and replace motor if found; check for shorted coil, and if found, change motor; test for grounded winding; free bearing or replace; use lubricants recommended by motor manufacturer or reliable lubrication engineer

Trouble: Noisy motor
Indication: Motor will not start when stopped

Cause	Remedy
a. Motor running single phase	Check with ammeter; current will be high in two phases
b. Electrical load unbalanced	Check current in each phase; replace motor
c. Shaft bumping (sleeve bearing)	Check alignment of belts and shaft
d. Vibration	Check for unbalance or large belt lacings
e. Air gap not uniform	Center rotor; replace bearings if necessary
f. Noisy ball bearings	Check lubrication; if okay, replace bearings
g. Loose punchings or loose rotor on shaft	Tighten bolts; dip and bake motor
h. Rotor rubbing stator	Center and replace bearings if necessary
i. Objects caught in motor	Stop motor and remove objects
j. Motor loose on foundation	Tighten bolts; realign motor
k. Coupling loose	Align and tighten bolts

Trouble: High temperature; smoking
Indication: Touch motor; see smoke

Cause	Remedy
a. Overload	Check current and take off part of load
b. Electrical load unbalanced	Check for single phasing or unbalanced voltage
c. Restricted ventilation	Blow out with compressed air; do not use more than 40 psi.
d. Tight bearing	Replace bearing
e. Shorted or grounded stator coil	Replace motor or cut-out coils

Trouble: Hot bearing
Indication: Hot to touch

Cause	Remedy
a. Tight belts	Align and loosen belts; use belt dressing
b. End shield loose or out of alignment	Tighten and straighten
c. Bent shaft	Straighten

Trouble: Hot sleeve bearing
Indication: Hot bearing

Cause	Remedy
a. Not enough oil	Wash out bearing and renew oil
b. Bad oil	Change to the correct oil
c. Oil rings stuck or rotating slowly; oil too heavy; ring has flat spot on inside surface	Change to lighter oil; replace ring
d. Ring damaged	Replace ring
e. Motor tilted	Level motor
f. Rough shaft	Resurface shaft

Trouble: Bad ball bearing
Indication: Worn, stuck

Cause	Remedy
a. Too much grease	Remove relief plug; flush out excessive grease
b. Wrong grade of grease	Clean bearing; add proper grease
c. Not enough grease	Remove drain plug and lubricate
d. Foreign material in grease	Flush and lubricate with clean grease
e. Bearing damaged	Replace

New Method Developed for ROTPROOFING, MOTHPROOFING

By oxidizing cotton or wool fabrics and then treating them with various hydrazines, Australian wool chemists have come up with—

- Effective rotproofing on both fibers
- Mothproofing of wool

By DR. M. A. JERMYN, Wool Textile Research Laboratories, Melbourne, Australia

REMINISCENT of the way Perkin stumbled upon the first synthetic dye are the results of an Australian group of biochemists who, seeking a way to separate proteins by paper electrophoresis, discovered that they had also found a way to attach various organic molecules to cellulose structures.

The procedure involves oxidizing the cellulose with periodic acid, which leaves aldehyde groups along the cellulose chain. These groups are highly reactive and readily combine with strongly basic molecules containing a hydrazine group.

Very good results in protecting cotton duck from Memnoniella echinata organisms were obtained by oxidizing the cotton with periodic acid and then treating with phenylhydrazine. Hydrazine derivatives other than aromatic hydrazines were useless in this respect.

From a commercial standpoint, periodic acid is impractical; so a more satisfactory oxidizing agent was developed from combining oxalic acid and potassium bichromate. Satisfactory coupling conditions can be produced with this mixture with less than 10% loss of strength in the fabric.

For mold protection, M-nitrophenyl hydrazine gave excellent results against Stachybotrys atra, which is most prevalent in Australia. In soil-burying tests, 4:4′ dihydrazinodiphenyl gave the best results on the oxidized cotton.

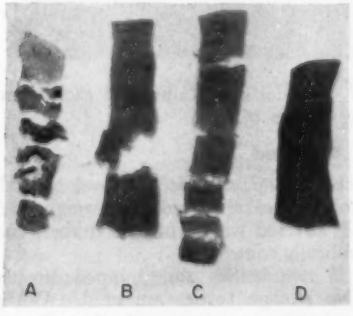
Up to this point, the work had proceeded on the assumption that replacement of a normal glucose unit with a chemically altered one had inhibited the action of the enzyme cellulase, which destroys the fibers.

But it was also found that the same oxidation and coupling procedure would protect woolen fabrics; and no sound theory has as yet been advanced to explain the results.

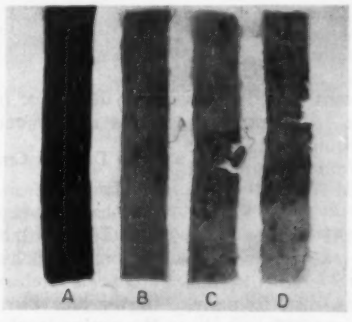
It is known that the protein macromolecules of wool contain groups (the side chains of the amino acids serine and threonine) that, like glucose, can be oxidized to give aldehyde groups.

The most effective coupling agent for wool is p-nitrophenylhydrazine, which not only protects the fiber in soil-burying tests but renders it mothproof.

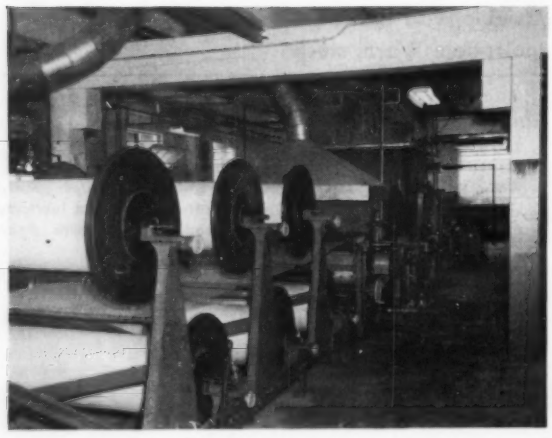
At present, the processes are satisfactory for industrial use, the only drawback being that cottons are stained a light yellow and wool fabrics become a deep orange-brown.



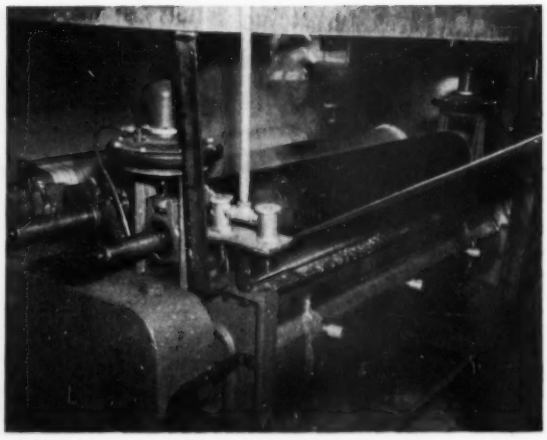
COMPARATIVE RESISTANCE of four samples of untreated and treated woolen fabric to burial in active compost under identical conditions is shown here. A—untreated; B—oxidized only; C—phenylhydrazine-treated only; D—oxidized plus phenylhydrazine-treated.



COMPARATIVE RESISTANCE of four samples of oxidized cotton buried in active compost under identical conditions is shown here. A—coupled with 4:4′ dihydrazinodiphenyl; B—coupled with m-nitrophenylhydrazine; C—coupled with p-tolylhydrazine; and D—untreated.



CREEL of six-beam capacity has antifriction bearings on beam journals and yarn guide rods.



SIZE BOX has synthetic rubber-covered front squeeze roll and blanket-covered back roll.

More and Better Warps Are Sized on This SLASHER

• Needing additional yardage of sized warps for the extra looms installed in its weave room, Florence Cotton Mills, Florence, Ala., has obtained the needed increase in output without the addition of any machinery or operators. Here's how it's done—

By **WILMER C. WESTBROOK,** Assistant Editor, TEXTILE WORLD

THE INSTALLATION of additional looms at Florence Cotton Mills, Florence, Ala., made it necessary to increase the output of its slashing equipment. The mill enlisted the aid of the West Point Foundry & Machine Co. to modernize and speed up its single slasher.

The results of the work done to the slasher have exceeded expectations. Not only does the slasher produce all the warps needed for present requirements, but the sized warps are also of better quality than formerly.

First, the slasher was moved from one side of the mill to the other. This move was a part of the mill's rearrangement of machinery to streamline production and eliminate backtracking of materials. The move involved several other departments.

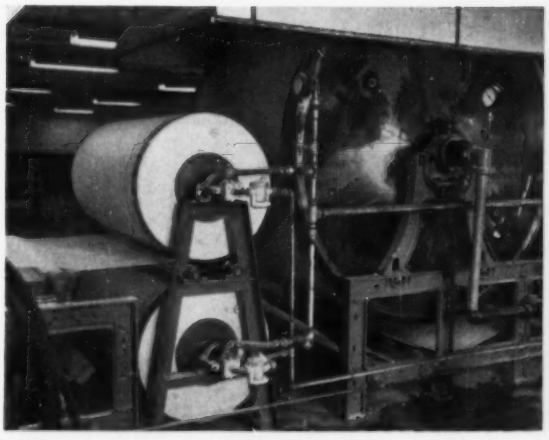
A new six-beam creel was installed. The creel has ball-bearing journals for the beams and also has ball-bearing yarn rods. The sheets of yarn pass around these rods instead of over or under the beams, and each beam turns independently of the others.

Two Drying Cans Are Used

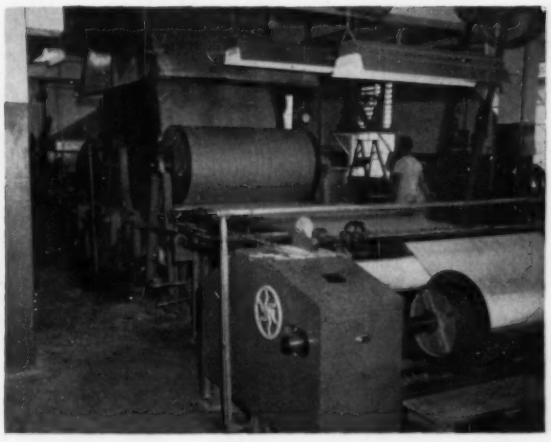
The single size box has an electric size-level control. The back squeeze roll is blanket-covered and weighs 600 lbs. The front roll is covered with synthetic rubber, and the pressure is hydraulically controlled.

Size is prepared in two kettles and pumped directly to the size box. No storage kettles are used. While the contents of one kettle are being used, the other is filled and the size is cooked. The cooked size is held at a temperature of 210° F. A two-way valve permits switching from one kettle to the other instantly.

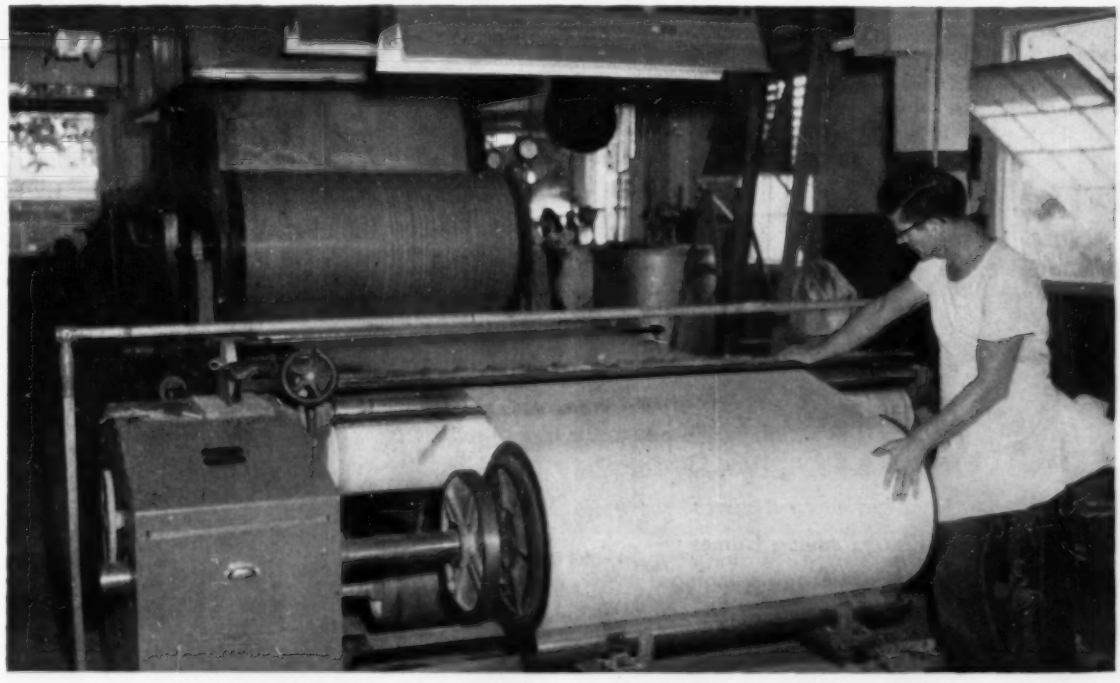
The slasher has two cylinders; the front cylinder is 7-ft. dia. and the back cylinder is 5-ft. dia. The drying surface has been increased with the addition of two 30-in. drying cans in front of the cylinders.



DRYING CANS, in addition to the two cylinders, provide adequate drying surface for the yarn.



SLASHER is driven by a West Point three-stage friction drive at a top speed of 60 yds. per min.



WARP is checked by Slasher Operator Cecil Hart. Beam contains 1,400 yds. of 19s cotton yarn.

The yarn passes around rods that hold it in contact with as much of the drying surface as possible. The front cylinder revolves clockwise and the back cylinder turns counterclockwise. The top drying can turns clockwise and the bottom can turns counterclockwise. This method gives uniform drying to both sides of the sheets of yarn.

Yards Per Beam Increased

The slasher drive is a West Point three-stage friction drive that automatically regulates the speed and torque of the beam as it fills with yarn. According to Mr. E. L. Crockett, overseer, this drive enables the mill to put 100 more yards of yarn on each beam than was possible with the drive formerly used. Also, uniform tension of the yarn is maintained and stretch is held to 1½%.

Before the slasher was rebuilt, the average speed was 39 yds. per min. Its maximum speed is now 60 yds. per min. for average warps. A typical slasher set is six 30-in. beams of 19s cotton yarn, 338 ends, 30,000 yds. per end. After sizing, this yarn is placed on 20-in. loom beams, 1,900 to 2,028 ends per beam, and each beam contains 1,400 yards.

"Our improved slasher has not only increased output enough to take care of warp requirements for the additional looms," said Superintendent Frederick Moore, "but we are also getting warps of better quality. The work that has been done in the slasher room is reflected in better-running work in the weave room, increased production, and better-quality cloth."

FOUR FEEDER HOPPERS, followed by a waste hopper, start the line. A feed apron takes the cotton to a small gyrator followed by a blending hopper. The last machine visible on the right is an Axi-Flo cleaner. Fire protection is stressed.

J-D Mills, Inc.— New WASTE-SPINNING Plant

Built from the ground up and equipped with the latest carding and spinning machinery, J-D Mills, Inc., Henderson, N. C., is now producing 45,000 lbs. of 6s to 10s knitting yarn weekly. The new plant has—

- **An extra-long cleaning line**
- **Individual card drives**
- **12x6½ roving frames**
- **Large-package spinning**
- **High-speed winding**

By WILLIAM G. ASHMORE, Associate Editor, TEXTILE WORLD

J-D Mills, Inc., Henderson, N. C., a brand-new waste mill, is now in full production. Over 45,000 lbs. of 6s to 10s knitting yarn are produced weekly. Most of the production goes into backing yarn for sweat shirts and similar products.

Since it started up last July, J-D has been on a three-shift operating basis. Sixteen operators are employed per shift.

Although a separate corporation, J-D has the same management as Henderson Cotton Mills and Harriet Cotton Mills. John D. Cooper, Jr., is president.

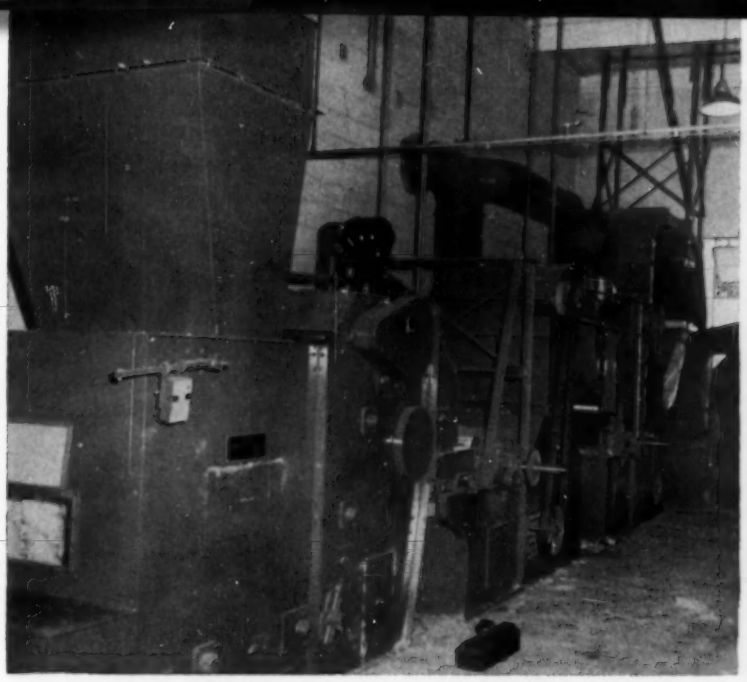
The mill has new equipment throughout; but probably the most interesting department is the opening and picking room. Here, 20 major units of opening and cleaning equipment extend in a single line around three sides of the room. The fourth side of the square is composed of pickers. Most of the equipment is Lummus and Aldrich, although some Whitin units are in the line.

Large Packages Are Made

Other features are individual card drives, new Whitin three-over-four drawing, 12x6½ Hi-Pro roving, Super-Flex spinning, and new Roto-Coners.

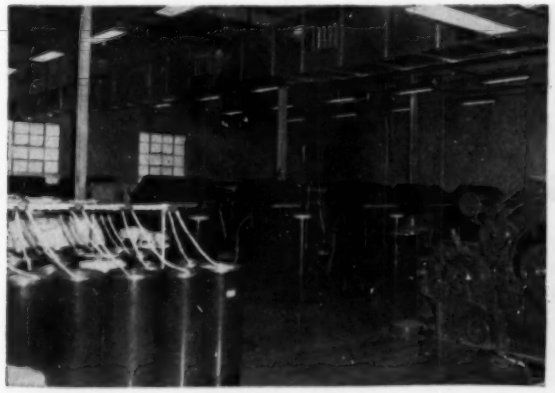
Large packages are made in all departments, and 14-in. cans are used in all carding operations.

For a waste mill, J-D is exceptionally clean. The machinery is not crowded and large expanses of spare floor make it easy to move around.



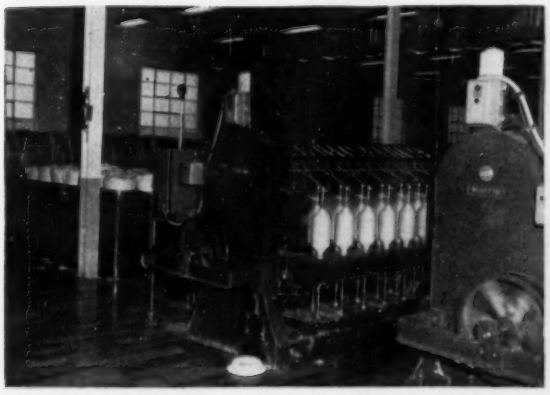
CLEANING LINE continues with a condenser, a mixing feeder, a beater, a Super-Jet cleaner, another beater, and a second Super-Jet cleaner.

A CONDENSER, a small gyrator, a large gyrator (foreground), a distributor, and another gyrator complete the line. The cotton is now ready for two single-process pickers that make 13-oz., 46-lb. laps.



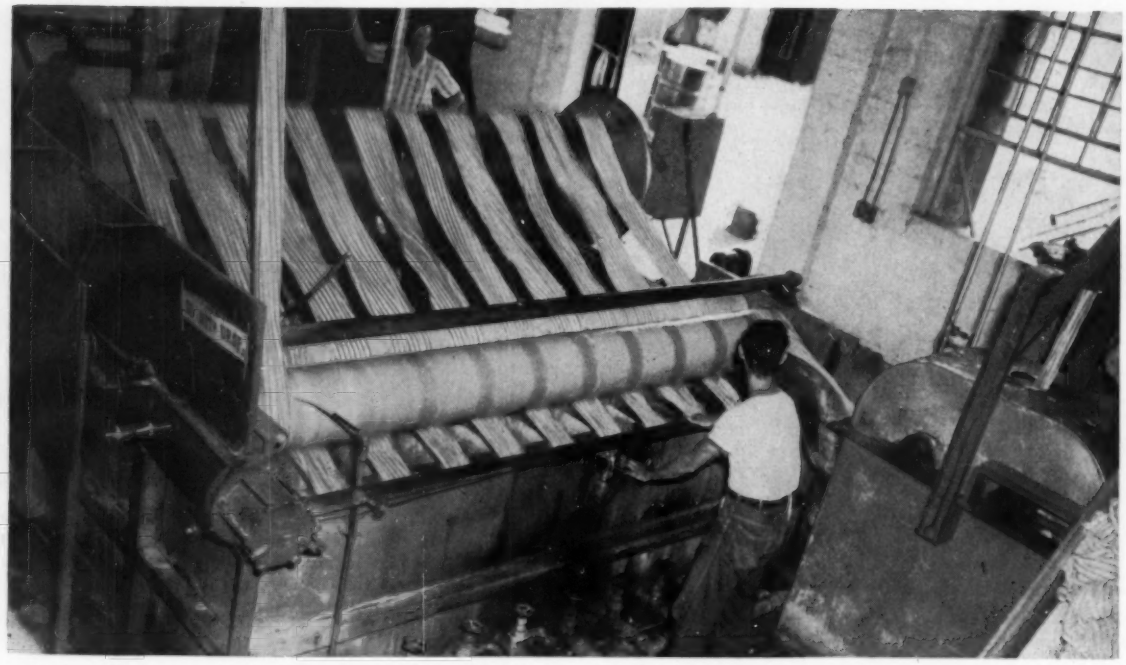
CARDS have individual drives and feed to 14-in. cans, which also are used in succeeding processes. A 55-grain sliver is made. Cards were surface-ground before installation.

BREAKER AND FINISHER DRAWING produces a 55-grain sliver at 109 ft. per min. There are 14 new Whitin three-over-four frames in operation. Large cans and high creels are used.



ROVING is made on new 96-spindle Hi-Pro 12x6½ frames equipped with variable-speed drives. Jack shaft runs 136 rpm. Roving is 0.90 hk.

SPINNING ROOM has 10 Whitin 252-spindle, 4-in. gauge Super-Flex frames. Using a 3-in. ring, the frames make a 12-in. bobbin that is wound on two new 120-spindle Roto-Coners.



SLACK WASHERS of this type are used on all washing operations in the continuous bleach range. The washers have 10 to 12 compartments and heavy nip rolls. Hot water flows from delivery end across to entering end for efficient washing.

How Indian Head Mills Bleaches and Finishes SHEETINGS

• Indian Head Mills' Whitney, S. C., plant is completely integrated from bale to consumer-packaged product. Here's how the bleachery produces sheeting and pillowcase fabrics and handles outside fabric to maintain a production of up to 1,000,000 yds. of cotton goods a week.

By **ROBERT W. PINAULT,** Assistant Editor, TEXTILE WORLD

SIX YEARS AGO, Indian Head Mills moved its sheet and pillowcase finishing and fabricating operations to an old mill near Spartanburg, S. C. Modern equipment and a good deal of renovating have put the plant in a position to compete successfully in today's market.

The bleachery is set up to take care of wide sheetings and pillowcase goods, as well as considerable commission work in other fabrics. From its own weave shed, the primary fabrics are 68x72 muslins and 88x90 combed percales. Both constructions are used for the articles marketed under the Pequot brand name.

Modern processing is used to get out a complete line of white, vat-dyed, and colored-yarn striped goods.

Continuous Processing Used

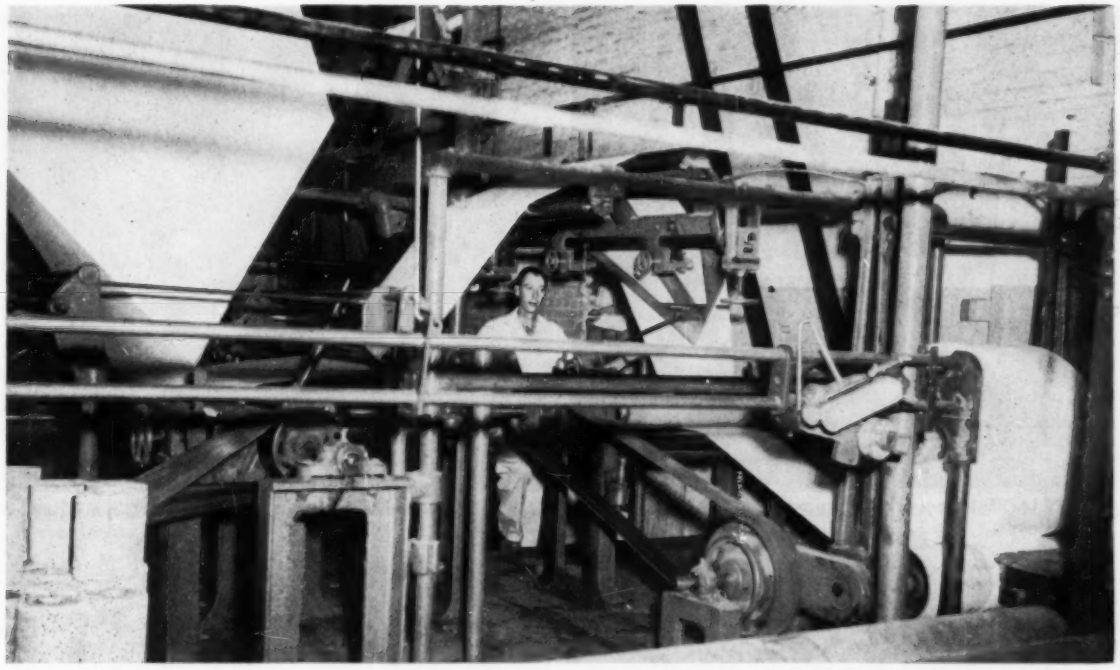
From the gray room the sheeting passes through a singer fired by a Vapofier unit and into a quench box carrying a solution of an enzyme at 160° F. A J-box receives the goods; they remain in the J-box for 8 to 10 mins. and then are drawn into a 12-compartment slack washer where hot water, flowing counter to cloth direction, washes out the converted sizing material.

The cloth then is impregnated with a 3% solution of caustic soda and pulled up into a J-box in rope form. Automatic plaiters form an evenly packed load in the J-box and steam is introduced to maintain a temperature of 210 to 212° F. The goods remain in the J-box for 1 to 1½ hrs. and are then started through another slack washer where plenty of hot water is used to remove the cotton impurities loosened up and made soluble by the caustic.

The second stage consists of a saturator carrying peroxide, silicate, and caustic and another J-box for storage.

Chemicals are fed by proportioning pumps to maintain the desired chemical concentration in the saturator. At this mill the goods carry 0.8 to 1.0% peroxide into the J-box, where they remain for 1 to 1½ hrs. at 212° F.

A final wash in slack washers removes residual chemicals, and the goods are piled into bins to await drying and finishing. The entire range from singeing through final washing



CALENDERS deliver sheetings to a double doubler, which gets them ready for cutting and hemming operations to follow.

averages about 160 yds. per min. production.

From the white bins the fabric is opened, scutched, water-mangled, starched, straightened and brought to width, and can-dried in one operation.

The water mangles are rugged steel-and-husk-roll machines equipped with spreaders and geared to the following starch mangle, tenter, and cans. Water mangling is an essential process in cotton-goods processing that plumps up the individual threads and

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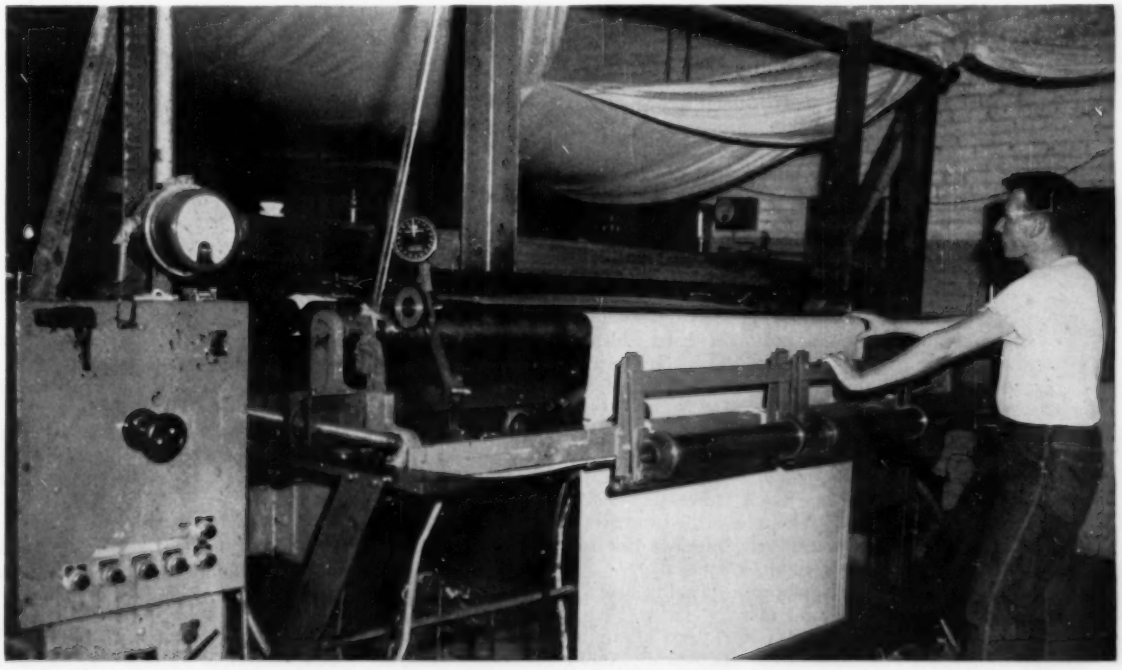
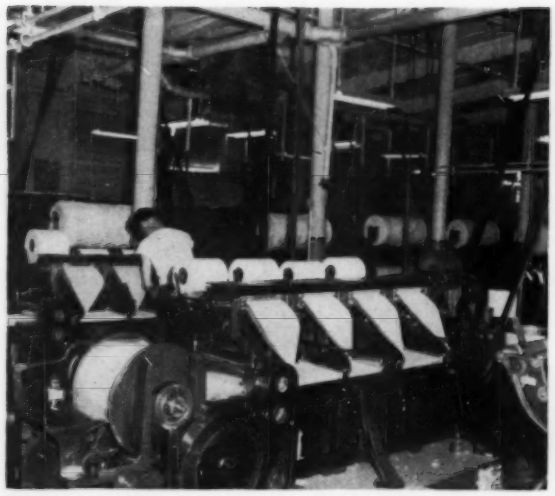


SHORT TENTER, equipped with two sets of weft straighteners, brings goods to width and aligns filling before the sheeting goes on to the dry cans.



RIBBON LAPPERS were set up to produce a 599.8-grain lap for the combers.

SLIVER CANS used with the new finisher drawing are 15 ins. in diameter.

Highland Park Upgrades *COMBED YARN for Broadcloth*

No. 2 Mill, Highland Park Mfg. Co., Rock Hill, S. C., is modernizing and balancing its preparatory departments to improve yarn quality and production for 240 new 50-in. X-2-model looms.

Highlights—

- Opening room modernized
- Pickers rebuilt
- Cards overhauled
- One-process roving added
- New spinning installed

By **WILLIAM G. ASHMORE,** Associate Editor, TEXTILE WORLD

TO IMPROVE the quality and production of its combed broadcloth and combed batiste, Highland Park Mfg. Co., Mill No. 2, Rock Hill, S. C., has modernized its preparatory departments and has replaced its 40-in. E-model looms with 50-in. X-2-model looms.

Highland Park turns out about 160,000 yds. of cloth per week. A typical combed construction is 40-in., 136x60, 3.65-yds.-per-lb. broadcloth. Strict Middling 1⅛-in. cotton, or better, is used in all constructions.

The opening room was modernized and enlarged to accommodate 56 bales of cotton laid down. Feeding is from 28 bales, blended in four hoppers. This blend replaces a 20-bale mix formerly used.

Pickers Were Rebuilt

Old pickers were taken out and replaced with two Saco-Lowell F6 machines that have one three-blade beater in the front section and one two-blade beater in the back section. A 14.5-oz. lap is made.

In the card room, 43 Whitin and 23 H&B cards were overhauled and reclothed to improve sliver variation and nep count. A 49-grain sliver is made at 7 lbs. per hr.

The cards are stripped weekly and ground every 11 days. Evenness tests are made after each grinding.

Combing preparation consists of three sliver lappers, 20 ends up, followed by three ribbon lappers, four ends up. The sliver lappers produce a 579.2-grain lap; the ribbon lap weighs 599.8 grains per yard.

Twenty-eight Naismith combers make a 49-grain sliver at 98 nips per minute. Comber doffing cycle is 1 hr., 10 mins.

Thirty deliveries of Model H finisher drawing were reworked and changed over to breaker drawing, and 32 deliveries of new Saco-Lowell eight-ends-up finisher drawing were in-

SINGLE-PROCESS ROVING was installed to replace old three-process frames.

NEW SPINNING FRAMES have two-apron drafting, ball-bearing spindles, antifriction top rolls, and Pneumafil.

stalled. Cans are 15 ins. in diameter.

The 49-grain comber sliver is fed to the breaker drawing, and a 50.5-grain sliver is delivered. The finisher drawing produces a 52.5-grain sliver.

The combed 52.5-grain sliver is made into 2.60-hk. roving on nine new Whitin 9x4½ G-10 Inter-Draft roving frames that have a total of 1,182 spindles. These frames replaced old 12x6, 9x4½, and 7x3½ frames, of which there were 3, 6 and 20, respectively.

The roving, doubled at spinning, is made with a draft of 12.14, twist multiplier 1.20, front-roll speed 138 rpm., and spindle speed 1,080 rpm.

Filling Is Warp Spun

The spinning room was completely revamped. Seventy old warp and filling frames were replaced with 56 new Whitin F-2 warp frames. Filling is warp spun and rewound.

The new frames have 312 spindles and are set for an 8-in. traverse, which can be adjusted to 9 ins. if necessary. Gauge is 3½ ins.; 1⅞-in. double-adjustable rings are used.

The frames are equipped with ball-bearing spindles, two-apron drafting, SD2 cradles, antifriction top rolls, revolving front and back top clearers, underclearers, Pneumafil, 10-hp. motors, Vari-Pitch drives, the Bijur oiling system, and Parks-Cramer overhead cleaners.

For 39.5s warp, a typical number, front-roll speed is 129 rpm., spindle speed 10,000 rpm., turns per inch 25.8, and twist multiplier 4.10.

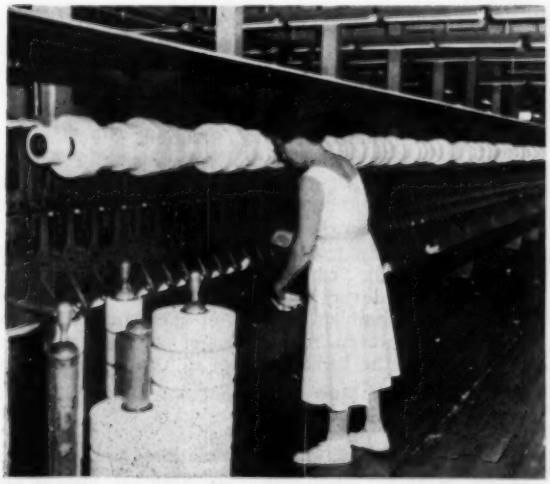
For 43.5s warp-spun filling, front-roll speed is 129 rpm., spindle speed 9,347 rpm., turns per inch 23.32, and twist multiplier 3.48.

Ends Down Are Reduced

Both warp and filling frames build bobbins with a combination wind on tapered paper tubes. Ends down were reduced to an average of 21 per thousand spindle hours. Break factor for 39.5s is 2400; for 43.5s it is 2245. Spinning work assignments were increased 60% because of the more-efficient operation and decreased spinning duties.

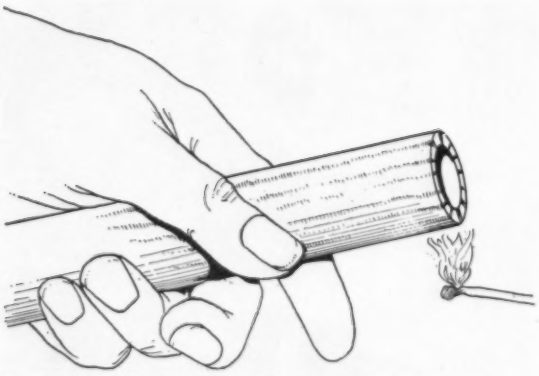
Filling is put on an 8-in. quill by two new 120-spindle Abbott quillers. New B-C spoolers were installed.

The weave room is being remodeled to accommodate an additional 120 50-in. X-2-model looms, scheduled to be in operation before the end of the year. At present, 120 of these looms are in operation, replacing 149 40-in. E-models.

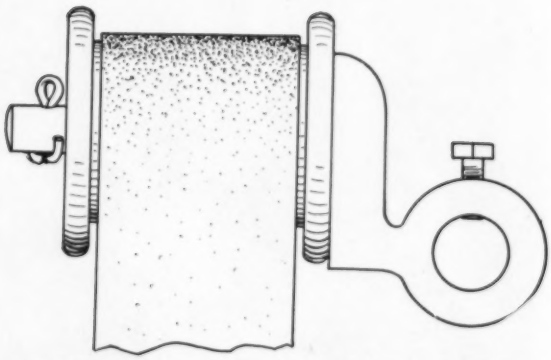


NEW QUILLERS were installed to put warp-spun filling on an 8-in. quill.

HIGH-SPEED SPOOLERS were installed to make cheeses for warping.



MATCH TEST will show oil content of wood bearing as oil is brought to surface by heat. Friction generates heat and causes the bearings to be self-lubricating in operation.



SELVAGE ROLLS, sheaves, and other loom parts of wood have many advantages. Included among these advantages are: low cost, simple installation, long service life, and easy storage.

Wood Will Outlast Metal For Some LOOM PARTS

• Bearing surfaces of wood have proved practical for many of the slow revolving and reciprocating motions of looms. Here are some uses and advantages of wood bearings and bushings—

By **WILMER C. WESTBROOK,** Assistant Editor, TEXTILE WORLD

MANY PARTS of a power loom have a very slow movement, often accompanied by excessive vibration. A hard metal-to-metal contact of these parts is not conducive to long, trouble-free service life of either the parts or the machine. Wood has certain advantages for many loom applications, among them being:

1. Wood helps cushion the shock of impact and vibration inherent in power looms.
2. Bearings, bushings, and other parts made of wood are less expensive per unit than like parts made of metal or alloys.
3. When impregnated in oil, bearing surfaces of wood are self-lubricating.
4. Wood parts, as a whole, are easier to fit and adjust than metal parts.
5. Shafts, studs, and other metal parts that come in contact with wood bearing surfaces do not wear out as fast as would be the case with a metal-to-metal bearing surface.

Loom Has Many Wood Parts

Some loom parts are made entirely of wood, and some are of wood or metal with a hardwood bushing or insert. The loom lay, shuttle, harness frame, picker stick, binders, and lug block are usually made of wood; but our interest here is mostly in small replaceable parts with bearing surfaces.

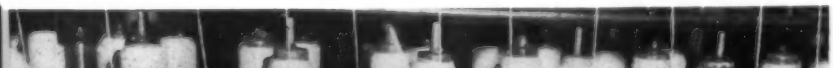
One of the most common wood parts for a loom is the harness sheave. Both round and compensating sheaves are made of iron, aluminum, alloys, and plastics; but wooden sheaves are still the favorite in many mills because of their low initial cost and long service life with a minimum of maintenance and attention.

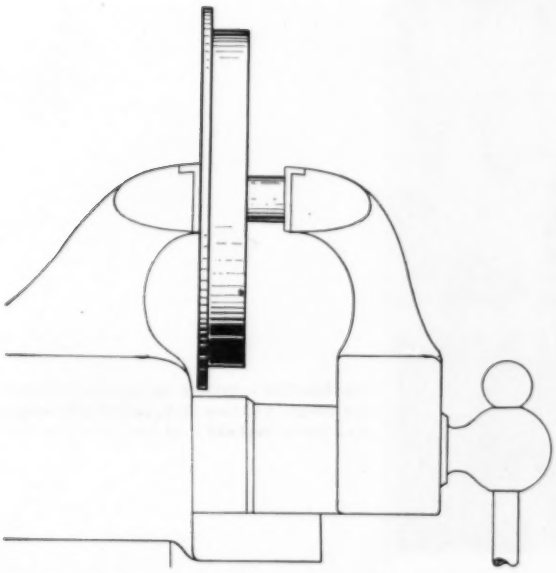
Sheaves are mounted on the loom above the harness; and oil, rust, or other foreign matter dropping from them will cause a fabric defect. For this reason, self-lubricating or oilless bearings in the sheaves are necessary.

For maximum service life and performance, the harness sheaves should be removed from the studs periodically. The schedule will vary widely because of the many factors involved. The number of hours of operation weekly, the type of fabric woven, the number of harnesses used, and the tension of the harness springs all have their effect on the sheaves.

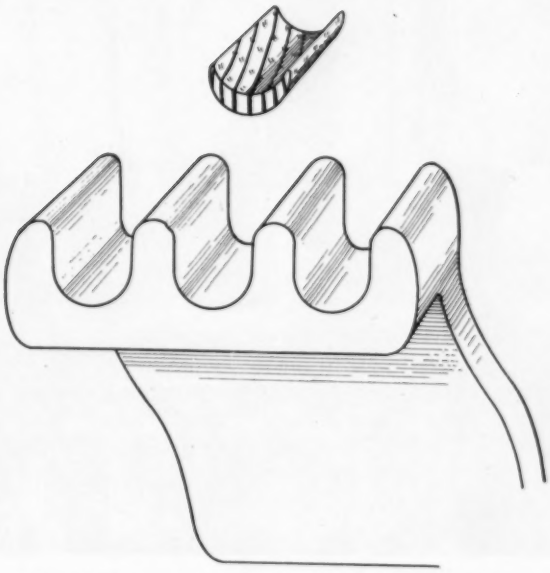
Remove All Excess Oil

When the sheaves are removed they, and the studs, should be closely examined. Any worn-out sheaves and studs should be replaced. If the sheaves have bushings, they can be rebushed and made good as new. Studs and





BEARING SURFACES of wood have long-wearing qualities but are easily damaged. All wood parts should be fitted exactly and pressed (not driven) into place.



WOOD BEARINGS and bushings are available in many sizes and shapes. Many stock loom items of wood such as this whiproll-shaft bearing can be bought or made in the mill shop.

sheaves should be thoroughly cleaned with a solvent and the sheaves should be submerged in oil for at least 30 mins.

It is well to have an extra set of sheaves so that the loom will not be idle during this reimpregnating period. All excess oil should be wiped from the sheave before reuse.

Other wood-bearing surfaces on loom parts are the whiproll-shaft bearings, vibrator-arm blocks, selvage rolls, parallel blocks, cloth-roll blocks, and on older looms, the crank arms. Maintenance of these wood parts is similar to that of harness sheaves.

Oilless wood loom parts should be stored in a cool, dry place. Heat will evaporate some of the oil and will cause the part to warp or split. On the other hand, dampness will cause the part to swell and some of the oil in it will be replaced with water, impairing its usefulness.

Store Submerged in Oil

Some wood parts, such as parallel blocks, cloth-roll blocks, whiproll-shaft bearings, and harness-sheave bushings, can be stored immersed in a pail or other container of lubricating oil. When wood parts are relubricated, oil is preferable to grease because the grease will have a tendency to clog the pores of the wood and destroy much of its self-lubricating qualities.

When loom parts of wood are not an exact fit, they can be easily trimmed or reshaped with a knife, rasp, reamer, sandpaper, or any suitable wood- or metal-working tool. Wood bearing surfaces should be perfectly smooth because a rough wood surface will wear much faster and will also cause the contacting metal surface to wear.

Reasonable care must be exercised in handling and installing loom parts of wood. Although the treated hardwood of most parts is very tough, rough treatment can scar or split the wood. When a wood bushing is installed, it should be pressed into place, and never driven. A mechanic's vise or a press can be used to seat the bushings.

Chamfer Leading Edges

The edges of wood bearings and the ends of studs and shafts to be inserted into them should be beveled to prevent scarring of the bearing surfaces. The bearing should be started straight on the stud or shaft and should not be forced. If necessary, ream the bore of the bearing to assure a snug fit; and keep in mind the expanding and contracting properties of wood.

When wisely chosen and correctly installed, the wood parts of your looms will give many hours of trouble-free service. When replacement is necessary, the parts can be quickly and economically obtained and easily installed.

Humanics — A TW Brief

Long Service No Excuse

The weaver had carried a complaint to the general manager of the mill:

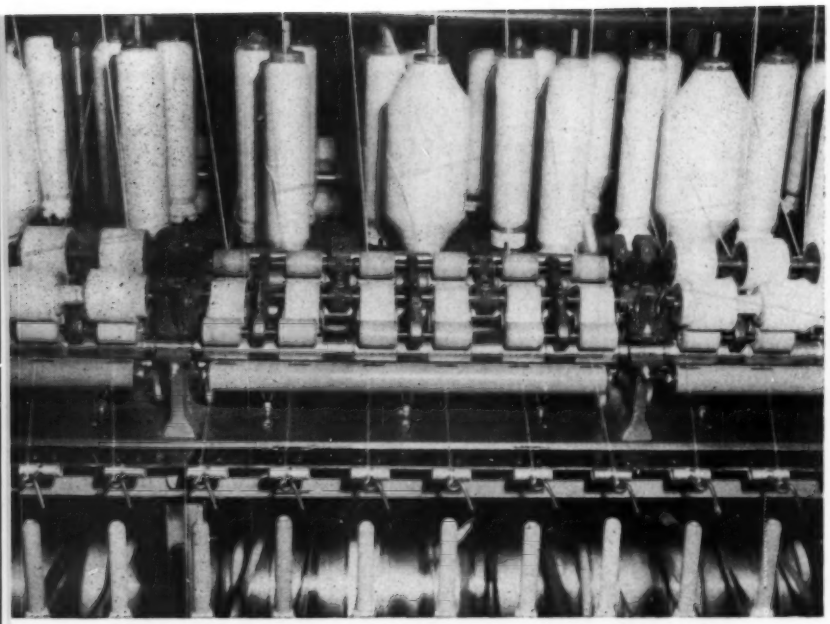
"The second hand laid me off three days for letting a misdraw run through a cut of cloth!" he said. "I've been weaving here twenty years and should be given some consideration."

The manager said, "The fact that you have been here a number of years makes the need of disciplinary action more obvious than would be the case if you were a new employee.

"Length of continuous service with the company does not give anyone special privileges insofar as the quality of his work is concerned.

"In fact, with the accumulated years of service, you should also have accumulated enough experience and pride of workmanship so that you would not need to be disciplined."

A supervisor should make it plain to his employees that standards of quality are to be maintained by everyone employed by the company. Although older employees are often given special privileges in choosing jobs and working hours and in other matters, they also have the responsibility of setting an example for the newer employees.



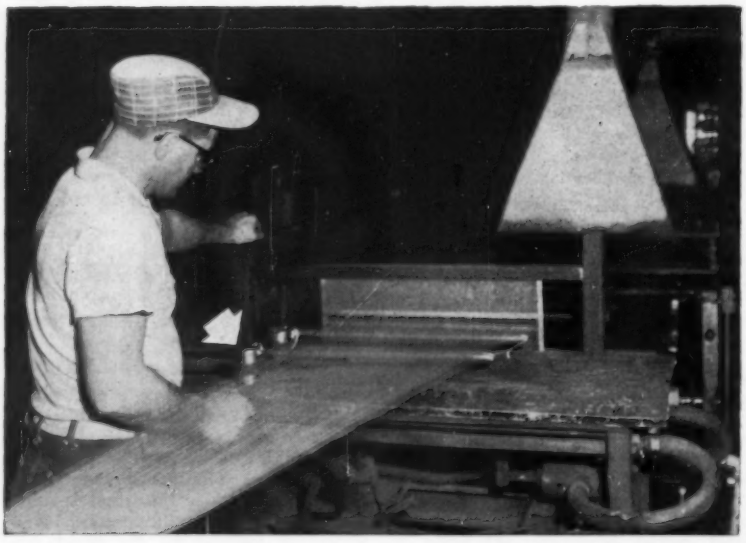
THE DRAFTING SYSTEM on spinning frames was converted to long draft, and all rolls were reworked or replaced.

YARN STRENGTH
Up 12% At Cartex Mills

Spinning and twisting improvements at Cartex Mills Div., Carlton Yarn Mills, Salisbury, N. C., resulted in the production of better combed-cotton and nylon yarns at lower cost. Highlights—

- Breaking strength increased 12%
- Ends down dropped 40%
- Production per spinner jumped 30%

By **WILLIAM G. ASHMORE,** Associate Editor, TEXTILE WORLD



AN AUTOMATIC LEASER (arrow), built by the mill, cut leasing time on the ball warper greatly.

SPINNING IMPROVEMENTS at Cartex Mills Div., Carlton Yarn Mills, Salisbury, N. C., have increased breaking strength of yarn 12%, reduced ends down 40%, increased production per spinner 30%, and greatly improved the appearance and evenness of yarn.

Cartex, which specializes in fine combed-cotton yarns for lace, embroidery thread, sewing thread, and Simplex knitting, produces a range of yarns from 19s to 100s spun from 1¼-in. Peeler and 1½-in. Karnak cottons. The mill also spins 10s to 50s nylon yarn from 1½- to 2-in., 1.5- to 3-den. staple fiber.

The drafting system on 100 Whitin frames was converted from conventional draft to Super-Draft. Back and front top revolving clearers were added, and the rails were lowered to permit an 8¼-in. traverse. Creels were widened and raised 2 ins. to permit the use of 8x4 roving bobbins. Gauge was

TWISTERS were rebuilt to produce 20-oz. packages; bobbin stroke is now 10 ins. Cylinders and rails were lowered 2 ins.

changed from 3 to 3¾ ins., and ring size was increased from 1¼ to 1⅞ ins.

The old front rolls were reworked by Gastonia Roller, Flyer, and Spindle Co., Inc., and reinstalled as back rolls. All ⅞-in. rolls were replaced with 1-in. rolls. Neb bars were removed and new self-aligning ball-bearing top front rolls were installed, along with Dixon saddles. All crooked rolls were removed, and reworked rolls were checked to 0.003-in. tolerance.

How Frames Operate

The modernized frames, spinning an average number of 50s single combed yarn, are set up to operate as follows: front-roll speed 150 rpm., spindle speed 9,800 rpm., draft 28.50, twist multiplier 3.25, and bobbin size 3 oz. For 50s yarn, doffing cycle is 8 hrs.; for 90s to 100s, the cycle is 16 hrs.

The frames have overhead and Pneumafil cleaners. Before the changes, rolls were picked every 8 hrs.; now they are picked every four days. A roll picker is being added for each shift to relieve spinners of cleaning.

Cartex is putting in two new 340-spindle Barber-Colman spoolers that operate at 1,000 yds. per min. producing 2- to 4-lb. packages.

The mill has 70 twisters, mostly Whitin, in operation. Thirty-two of these twisters are being rebuilt to handle larger packages for thread yarns. Bobbin stroke is being increased from 7½ to 10 ins., rings from 2¼ to 3 ins., and package size from 10 to 20 oz. Fine yarns will continue to be twisted on 2⅛-in. rings.

The twister modifications, which are being done by the mill shop, include cutting out the cylinder-bearing samsons and reversing them to permit the cylinders and rails to be lowered 2 ins.

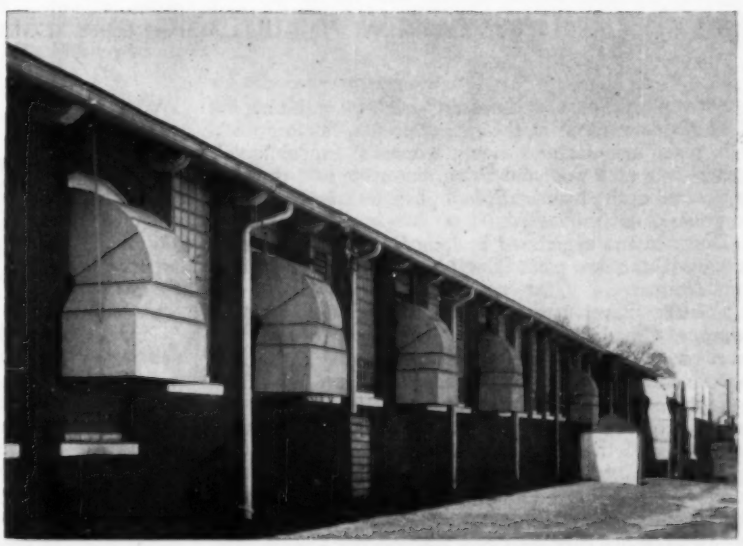
Cartex has six Foster 102 winders that make 3-lb. tubes and cones at 500 yds. per min. Slub catchers are set 0.003 in. over the diameter of the yarn.

The mill has modified its Cocker ball warper by building an automatic leasing device that puts a lease in the warp every 500 yds. The leaser, air operated and electrically timed, leases the warp in a few seconds, compared with 1.2 mins. required to lease it by hand.

The warper is equipped with mill-made two-burner gassing equipment that knocks off when an end breaks. Production is 250 yds. per min.

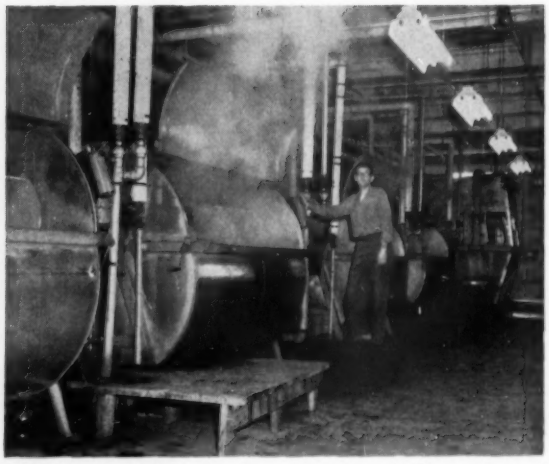
The spinning and twisting departments have Bahnson air conditioning supplemented with Westinghouse Precipitron units. One unit is located on the roof over one end of the spinning room, and the other is inside the main building at the opposite end of the room.

The two units clean a total of 122,000 cu. ft. of air per minute. Temperature is 80° F., and relative humidity is 55%.



INTAKE DUCTS supply the spinning room with air that is cleaned electrostatically.

BAGGING SWEATERS in Dacron or Orlon bags gets them ready for dyeing. About 18 lbs. is an average load per bag. Open end is carefully laced full width to avoid crowding the sweaters.



MAIN BATTERY of dyeing machines consists of one 150-lb. machine and three 300-lb. machines. The paddle-type machines are Type 316 stainless steel and are made by Klauder-Weldon-Giles.

How Spencer Mfg. Co. *DYES SWEATERS*

When Spencer Mfg. Co. at Spencer, W. Va., decided to do its own dyeing, it started from the ground up and built a new building, 110x70 ft., that houses preparation, dyeing, and finishing equipment. The new setup gives the company—

- **Lower costs**
- **Quicker deliveries**
- **Better control**

By ROBERT W. PINAULT, Assistant Editor, TEXTILE WORLD

A NEW DYEHOUSE AT SPENCER MFG. CO. is turning out Orlon sweaters at the rate of 15,000 lbs. per week. The plant manufactures men's, women's, and children's garments in both wool and Orlon; but up to now the wool is received as dyed yarn. Future plans include the dyeing of wool skeins.

Designed and engineered by John F. Ash, dyeing superintendent, the new plant is well laid out, light, and easily kept clean.

Spencer makes both circular-knit and full-fashioned sweaters. Circular-knit in jersey and interlock types are received at the dyehouse in strips averaging 25 sweater bodies each. Trim is knitted separately and included with the bundles of sweater bodies when they are received at the dyehouse. Full-fashioned sweaters are delivered as units, with trim already attached.

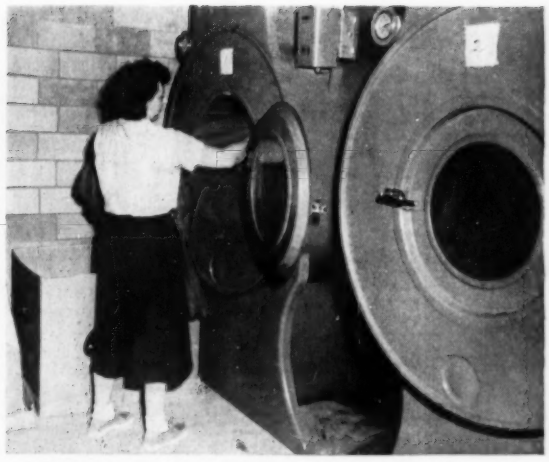
Mesh bags of Dacron or Orlon are used to package the sweaters for dyeing. Girls put approximately 18 to 20 lbs. of sweaters or strips into each bag and lace up the open end, using large pins or a synthetic-fiber braid. Sufficent trim for circular-knit sweaters is included to insure a color match of the two components in the finished sweater.

Here's a Dyeing Routine

The bagged goods go directly into a Klauder-Weldon-Giles paddle machine in a warm-water bath of 120 to 130° F. A thorough wetting out is allowed for 5 mins.; then for dispersed colors, 1% of Duponol is added and the goods are run 2 to 3 mins. longer. Then the dyes are added and the temperature brought to 210° F.

Foxboro automatic controls maintain any desired temperature. The first patch—cut from a strip of goods suspended in the bath—is taken after an hour's run at dyeing temperature. The shade is checked at half-hour intervals from then on. Usually the dyeing is completed in 1 hr. when disperse colors are used. Then the bath is cooled down to 120 to 130° F. and dropped. A fresh warm rinse, followed by the application of finish, completes the operation.

For many of the heavier shades and where lightfastness requirements demand them, Sevron colors are used.



A BATTERY of Huebsch tumbler dryers is used to dry the dyed sweaters. Tumbler drying is ideal for this work because it produces the characteristic soft, fluffy hand.

SHADES ARE CHECKED after drying, and any units that may have dyeing defects are laid aside for rehandling. The sweaters are also graded for uniformity of shade in each lot.

Sevron colors are handled as follows:

For a full load of 335 lbs. of sweaters, the bath is made up with:

4 lbs. acetic acid
1 lb. sodium acetate
34 lbs. Glauber's salt
3 lbs. Capracyl leveling salt
1 lb. Versene
Plus necessary dyes

Dyeing is started at 130° F. and the temperature is raised in 30 mins. to 210° F. The first sample is taken after 45 mins. on light or medium shades. For dark shades, patching starts after an hour's run and the shade is checked at half-hour intervals.

If it is necessary to add color, the steam is shut off and the cover is raised on the machine until the temperature drops to 180° F.

To get even dyeing with the Sevron colors, particularly in light or medium shades, a retarding agent such as Retarder LAN is added to the dyebath. Up to 5% may be required on medium shades, and 1 to 2% often benefits dark shades.

When the shade is matched, the bath is allowed to cool to 170° F. Then cold water is run in slowly to bring the temperature down to 130° F. The bath is dropped and a fresh rinse at 130° F. for 10 to 15 mins. follows.

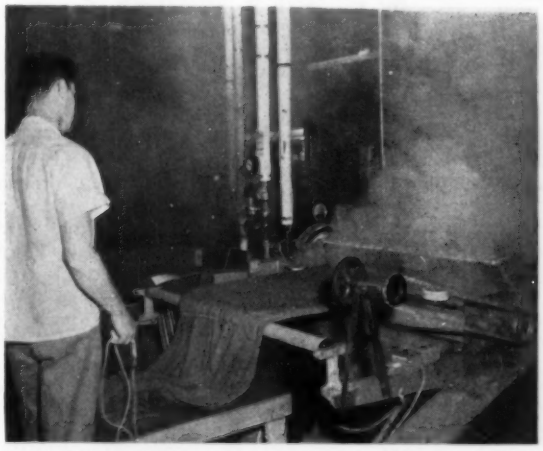
Heavy shades get an afterscour in a bath made slightly acid with acetic acid to which 1 to 2% Capracyl leveling salt is added. This scour removes surface color that might cause crocking.

When the Sevron colors are used, a final bath containing a cationic softener corrects the dry and scroopy hand caused by the acid. Spencer uses 2% Velvatole C28 for this job to get the soft hand required.

How Orlon Is Bleached

Bleaching for good whites on Orlon requires a prescouring operation. At Spencer the scour bath, containing synthetic detergent and a sequestrant, is run for 30 mins. at 180 to 190° F., cooled gradually to 130° F., and then dropped out.

Textone up to 5% owg. and 3% acetic acid are the active agents used for the bleach. Bleaching is done at 204° F. for 1 hr.; then the bath is cooled, dropped, and



CALENDERING with steam and light pressure flattens out the fabric, removes slight wrinkling left from dyeing and drying, and makes it easier to cut.

a fresh rinse is given the goods, followed by a sour in 2% sodium bisulfite. Bleached goods require a final finishing bath to which 1½ to 2% of Velvatole C28 is added.

When the various wet processes have been performed, the bags of sweaters are hydroextracted. Then the strips or sweaters are placed in Huebsch tumbler dryers and dried.

An inspection operation follows in which each unit is checked for levelness and the shade of each unit is matched to others in the lot. Occasionally there are differences in shade between sweaters that require a separation of a lot into groups.

Sweater strips are run over a Tube-Tex steamer-calender unit that plaits down the strips onto flats. The operation smooths out any wrinkles and leaves the goods ready for the fabricating department.

Full-fashioned sweaters are bundled into lots and sent to the fabricating department. When the garment-manufacturing operations are completed, the sweaters are pressed on flat-bed presses. Then each sweater is individually boxed and is ready for shipment.

DOUBLE PICKS and DRAG-INS
Can Be Prevented This Way

• Double picks and drag-ins are prevalent defects in all fabrics, especially in cloth woven on box looms. Here are simple rules to help prevent many filling defects that detract from the appearance and value of the cloth.

By **EUGENE P. SCHREMP,** Consulting Editor, TEXTILE WORLD

DRAG-INS AND DOUBLE PICKS are hard to remove from most fabrics without leaving a defect almost as bad as the original one. Then, too, it takes time and costs money to pull these extra ends of filling yarn from the cloth. It it much better to spend the time and effort preventing these cloth defects rather than in trying to remove or mend them later.

Drag-ins may fall into a number of different classifications, as:

1. The short end of filling yarn drawn in double at the moving box end of the fabric (commonly called side lines)
2. The long end of filling yarn drawn in at a filling change on an automatic loom, causing a double pick extending from the magazine or transfer side of the fabric
3. Either the short or long end of filling carried into the fabric by the shuttle at a transfer of filling
4. Double or multiple ends of filling that sloughs off the filling bobbin and weaves into the cloth

Drag-ins or side lines at the moving box end are caused by the filling end from the outgoing shuttle twisting around one or more ends of filling in the inactive shuttles. When the shuttle is picked across the lay, it carries the end of filling into the shed of the cloth, causing a drag-in. This drag-in may extend only a fraction of an inch or, in some cases, may extend the full width of the cloth and make an unsightly defect.

A splintered shuttle may cause side lines by catching the filling end of one of the inactive shuttles and carrying it into the shed. More trouble is usually experienced in weaving with three or four shuttles because there are more ends of filling extending from the fabric to the shuttle box, and they may twist together. Lively or kinky filling will twist together more than dead filling, and twist fillings are the worst offenders.

Steaming or conditioning the filling will help relieve the tendency to kink or twist. After conditioning, the filling should not be used in the loom for a period 8 to 16 hrs. If wet filling is woven into some types of fabrics, the finished cloth will have a cockled appearance.

Another thing to guard against in steaming or conditioning filling is that some types of tints used to distinguish quality and twist may have the color set by this process. In such cases, the tint will not wash out and stained cloth will result.

If there are any doubts about the results of steaming filling, a few pounds of filling should be steamed and woven into a cut of cloth near the end. Close checking and follow-up through finishing will show if there are any harmful results.

Watch Bouncing Shuttles

Side lines can also be caused by mechanical conditions in the loom. Too much power from the picking motion on the magazine side or a loose binder may cause rebounding shuttles. When a shuttle rebounds in the box, the filling end will become slack and there is a possibility of the loose end twisting around the outgoing end.

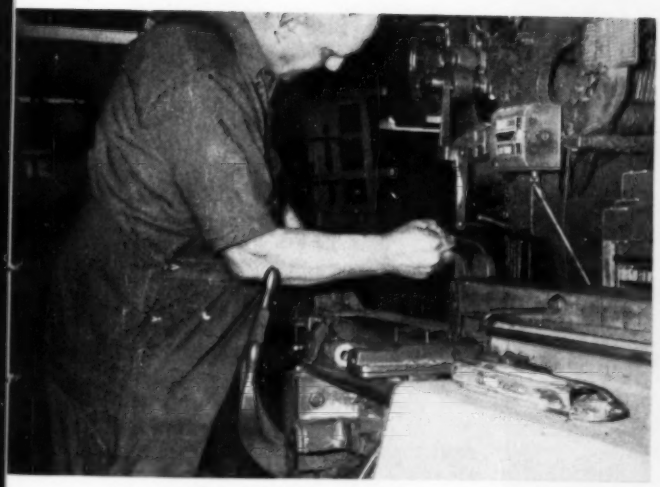
Loose filling tension in the shuttle caused by worn-out brushes or fur or by improperly adjusted tension eye will also cause side lines. Changing the last end in the listing to a different harness will sometimes correct the trouble by holding the filling end down.

Some mills use a dividing thread to hold the ends apart, and all sorts of devices have been tried to eliminate side lines. A common method is to take a piece of cloth about 3 ft. long and 2 ins. wide and pull the warp ends out on both sides. The cloth is twisted around and fastened from the protector rod to a wire extending from the reed cap bolt about ½ in. from the shuttle box.

Train Weavers and Fixers

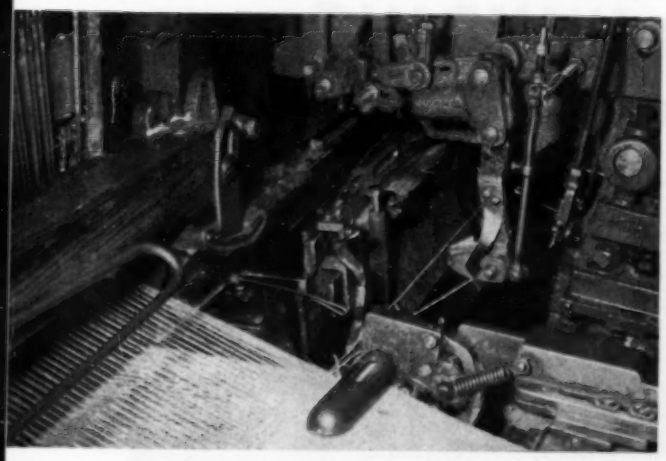
Double picks at the time of transfer that extend into the fabric from the magazine side of the loom are usually caused by the filling cutter failing to cut and hold the filling thread at the time of transfer. The filling cutter must be adjusted so that it picks up the filling of the bobbin that is to be transfered, holds it at the cloth end, and cuts it at the magazine side.

Weavers and loomfixers should be instructed to watch the ends that are cut by the temple thread cutter

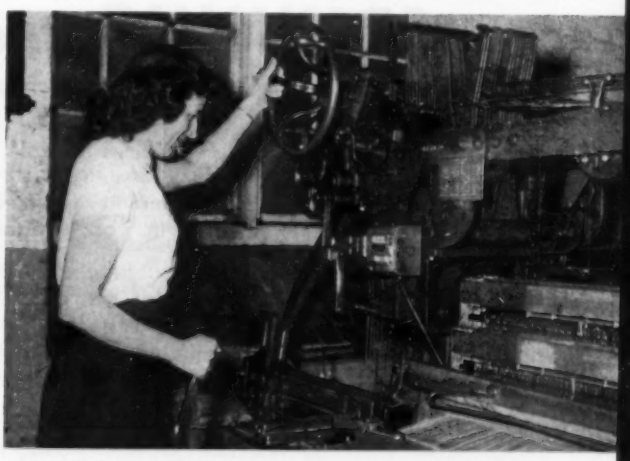


LOOMFIXERS should check boxing of the shuttles after installing a new picker or picker stick. Too much power on the pick can cause filling to slough off the bobbin.

WINDER TENDERS should be instructed to report any spindles winding soft bobbins. If the filling is wound with incorrect tension, it may slip off the bobbin in bunches.



FILLING CUTTER must be adjusted to cut the filling at the magazine side and hold it at the cloth end. Failure of the cutter can permit the end to be pulled into the cloth.



THE WEAVER should check the looms at regular intervals. Visual inspection will show if the thread cutters are operating correctly and dropping the cut end of filling.

at the filling transfer. Two filling ends extending from the listing show that the filling cutter is working properly and that there is little likelihood of a double pick. One end showing means that the cutter did not pick up the filling at the time of transfer and the end was carried into the fabric, causing a double pick. Three ends showing is an indication that the cutter picked up the filling but did not cut it. This lets the shuttle drag the loose end into the shed and also causes a double pick.

Filling Sloughs Off Bobbin

Double picks of wild yarn carried into the fabric at the time of transfer are caused by the outgoing bobbin not pulling the filling thread clear of the shuttle eye as the bobbin falls into the bobbin can. There can be a number of causes of the filling end not being pulled clear. If the cutter is not cutting properly, the end will not be pulled through the eye. Also, if the filling breaks, the broken end left in the eye of the shuttle will be dragged into the fabric on the first pick after the filling transfer.

A worn shuttle groove will prevent the filling end from being pulled clear and cause drag-ins. If there is not enough yarn left on the bobbin at the time of transfer to pull the yarn through the shuttle eye as the bobbin drops into the can, the end left in the eye will be drawn into the cloth and cause a drag-in.

Filling sloughing off the bobbin during the weaving process will cause double or multiple picks. The wrong type of bobbin for the various kinds of filling yarns will also cause sloughing. Filling wound with too little tension, too much picking power on the loom, loose binders, or hard packing behind the picker will all cause the filling to slough off the bobbin.

Whatever their cause, drag-ins and double picks are preventable defects and steps should be taken to prevent them during weaving. A little study will show the source of the trouble, and then the remedy will usually be obvious.

SPINNERS creel, patrol, piece up, and clean 12 sides. Bobbins hold 12 oz. of yarn.

New SPINNING and WINDING Save Falls $60,000 Yearly

Falls Mfg. Co., Granite Falls, N. C., is modernizing its two plants. New spinning and winding in Mill No. 2 improved yarn quality and permitted a 50% increase in work assignments. Highlights—

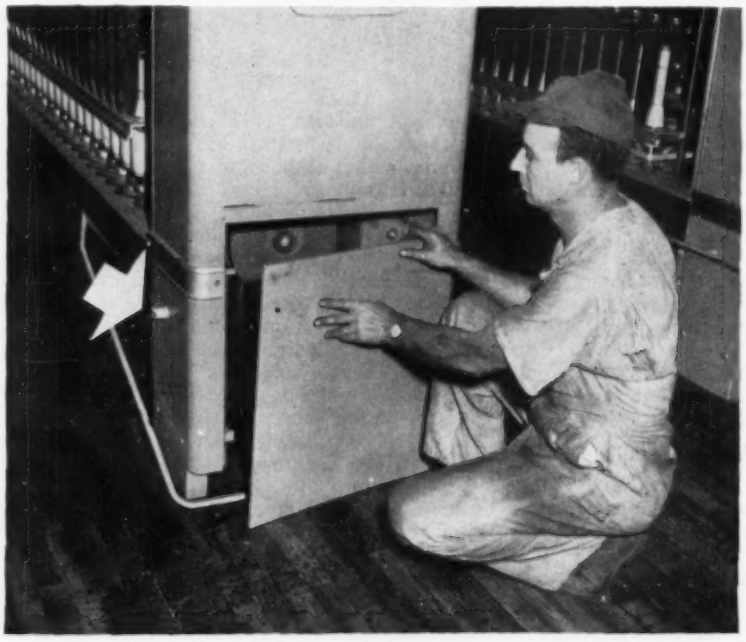
- Special 12-oz. tapered bobbins
- Guard rails for frames
- Floor-cleaning system
- Cones with only three knots
- Modified air-washing system

By **WILLIAM G. ASHMORE**, Associate Editor, TEXTILE WORLD

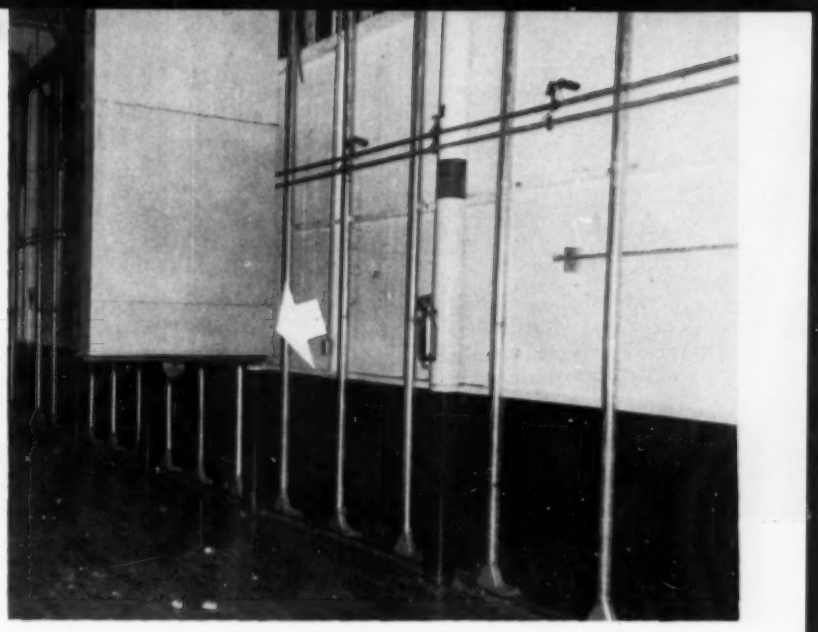
EARLY IN 1956, Mill No. 2, Falls Mfg. Co., Granite Falls, N. C., replaced 5,040 spindles of conventional spinning with 4,320 spindles of Gwaltney spinning. At the same time, three new Foster 102 winders were installed.

These changes made it possible to increase spinning and winding work assignments more than 50%. The payroll was reduced over $60,000 a year in these departments.

In the spinning room, three spinners and one doffer replaced eight



GUARD RAIL is dropped to open collecting-box door; in raised position, the rail snaps over a bracket (arrow).



SUCTION PIPES in packing room pull lint from spinning-room floor into a storage container (arrow), which is dumped once each shift.

operators formerly required. Winder operators were reduced from six to two. The same poundage of 12s to 30s combed yarn is produced as formerly, but quality is better. Production is over 30,000 lbs. a week.

Frame Efficiency Is 95%

The 18 SG1 240-spindle frames are 4-in. gauge and have 3-in. rings. Yarn traverse is 11¼ ins., spindle speed is 9,000 rpm., and frame efficiency averages 95%.

The 22s to 30s yarn is made from 11x5½ 1.80-hk. roving. For 22s to 30s yarn, 12x6 1.30-hk. roving is used. The roving is made on new FS2 frames.

The SG1 frames filling-wind 12 oz. of yarn on special 15-step cone-base Bowen & Hunter bobbins. The bobbins, built to Falls' specifications, have a slight taper that makes it easy to strip them at the winder. The yarn does not have to be cut off with a knife; so there is no danger of scarring the wood.

The frames are equipped with Pneumafil and Parks-Cramer overhead traveling cleaners. The overhead cleaners have long sleeves that blow the lint continuously along the floor to a side wall. Here, a series of suction vents pull the lint through a condenser to a central collecting bin in the packing room on the other side of the wall. The waste brings a higher price than ordinary floor sweepings.

The floor-cleaning arrangement, developed by J. H. Warlick, vice president and superintendent, in cooperation with Parks-Cramer engineers and his own mechanical staff, is said to be the prototype of the new floor-sweeping systems now being installed in many plants.

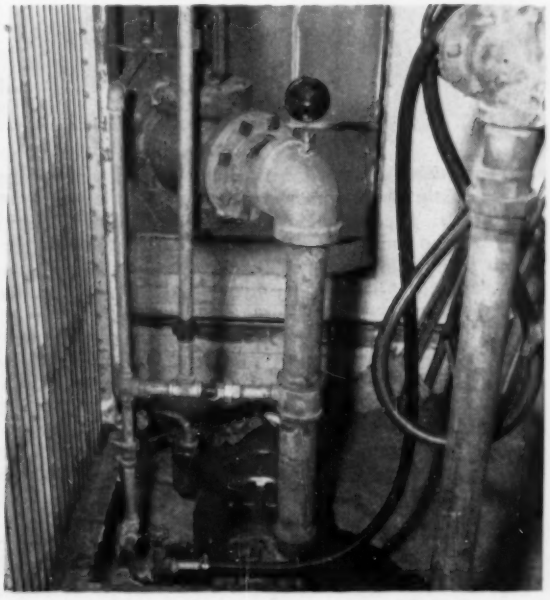
The various cleaning aids make it possible for each spinner to do all patrolling, piecing up, creeling, and cleaning for 12 sides.

The new frames were hardly in operation before they began to show scars from being bumped by doff boxes. Master Mechanic Pinckney L. Cline built an ingenious guard rail around the ends of the frames, as shown in one of the accompanying photographs. The rail protects the frame and yet gives easy access to the Pneumafil collecting-box door.

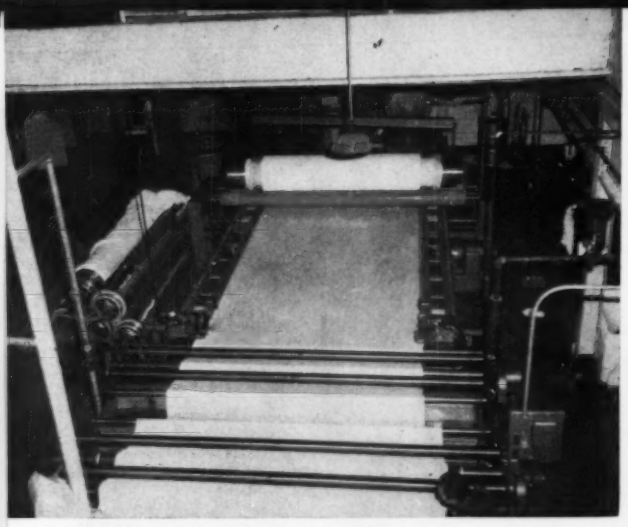
In the winding department, the new Foster winders make a 3-lb.

CONTINUED ON PAGE 228

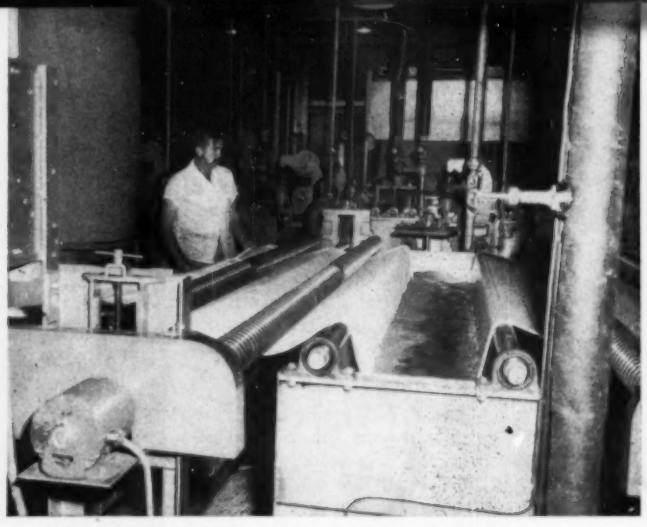
BOBBINS have a special taper that makes them easy to strip at the winder.



AIR-WASHER PIPING was rearranged to permit a hose connection for cleaning the baffles.



TRICOT BATCHING for pressure-dyeing is performed by two men on this McCreary range. Opener rolls precede a warm-water bath that is followed by more opener rolls. Cloth is guided by Askania guiders.



WETTING-OUT TANK is part of the batching system. Warm water relaxes the fabric, which is batched up wet after passing through a short pin tenter.

Pressure Improves TRICOT DYEING

Pressure-dyeing tricot fabrics is now a well-established method of producing a wide range of shades. Practically any style of tricot fabric can be dyed by this method. Advantages include—

- **Larger dye lots**
- **Considerable labor saving**
- **Less steam consumption**

By ROBERT W. PINAULT, Assistant Editor, TEXTILE WORLD

PRESSURE-DYEING nylon tricot fabrics is giving a large Southern knit-goods finisher a better job at lower labor costs. There are benefits, too, in less steam consumption and the ability to dye large lots at a time. The higher temperatures possible with pressure cut down dyeing time and permit the use of some dyes that don't work well at 212° F. or less.

For pressure-dyeing, the fabric is inspected in the gray and excessively dirty pieces reserved for other dyeing methods. Goods to be pressure-dyed are screened in this way because scouring a mass of fabric wound on a roll is less effective than scouring individual strands on a beck.

After inspection, the goods are sewed end for end to make up 800- to 900-lb. batches. The tacking operation is eliminated.

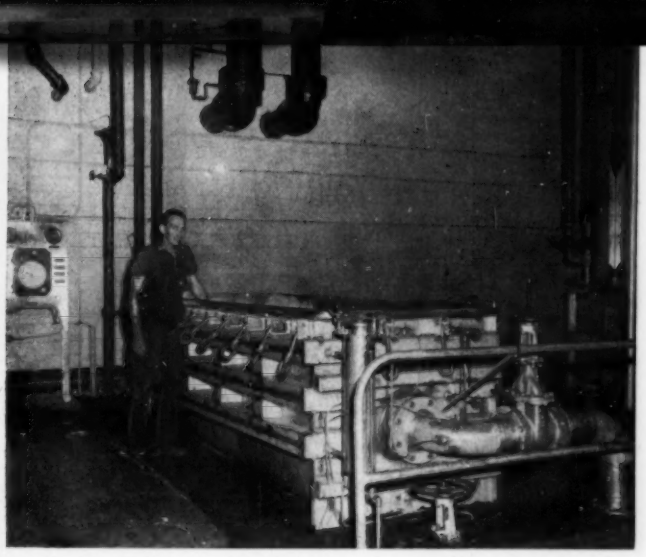
Proper Batching Important

To get the goods ready for dyeing, they are run through a special McCreary batching machine that was developed especially for the work. In this operation, a series of power-driven scroll rolls spread the fabric out to width and the goods are then given a short wetting out in warm water. Then they pass through four more scroll rolls and onto a short pin frame fitted with automatic Askania guiders. The guiders have an uncurling device that insures pinning close to the fabric edge. The wet cloth is delivered directly onto a perforated beam that rests on two driven rolls.

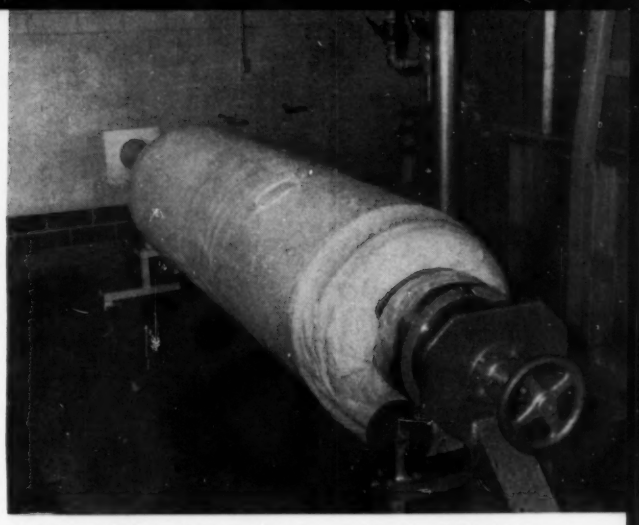
The perforated beams used for this purpose are the standard beams supplied with the Burlington Engineering Co. pressure-dyeing unit. To suit various widths of fabric, beams are perforated for 70 ins., 84 ins., and 110 ins.

The beam selected for any particular lot will have perforations that extend within 4 to 5 ins. of the edge of the batch on each side. Practice has shown that more overlap will give underdyed edges and that less will permit dye liquor to escape at the edges of the fabric.

After the lot has been beamed, it is wrapped in clean tricot fabric and the wrapping brought down over the edges of the fabric and secured with stainless-steel clamps. Then the batch is lowered into the machine. The open end of the hollow beam rests in a leakproof fitting connected to the liquor-circulation pump. A scour for 45



BURLINGTON DYEING MACHINE is run open for most scouring operations. This installation is particularly well laid out with pump and most auxiliary piping below floor level.



VACUUM EXTRACTOR removes excess water from the dyed roll. The goods are given a 30-min. extraction and then turned 180° and extracted for another half hour. Pump is behind wall.

mins. at 180° F. with detergents and xylol produces a thoroughly clean fabric that will dye evenly. Automatic control of scouring and dyeing is provided by a recording control instrument that can be set for various cycles of operation.

Scouring liquor is pumped from the inside of the perforated beam through the fabric and returns to the bath. Usually the fabric is only about one-half immersed in liquor during the scouring operation. A rinse at 110° F. follows the scouring operation.

How Dyeing Proceeds

After scouring, the cover is fastened on the dyeing machine and a fresh bath containing disperse dyes and necessary assistants is made up. A sample of the goods being dyed is put in the sampling chamber to be used for checking shade. Dyeing is started at 90° F. and the temperature is raised to 235° F. in 45 mins. After 30 mins. at the elevated temperature, the sampling chamber is shut off from circulation, opened, and a patch taken to check the shade.

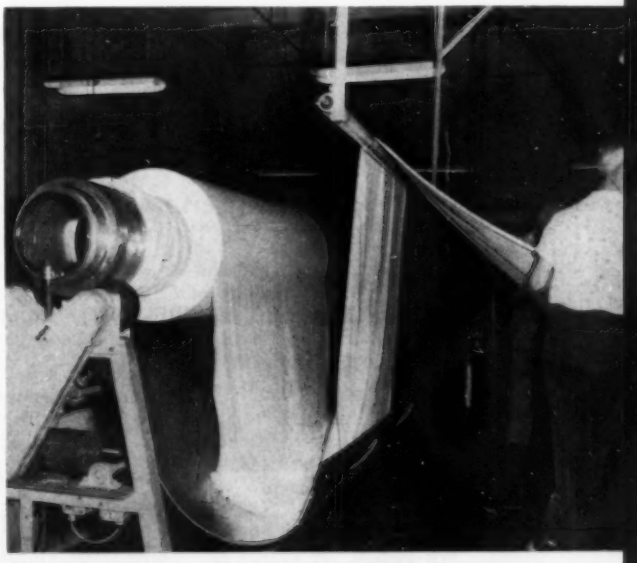
Usually, on established shades, the lot is let run without further additions of color at this point. If dye adds are needed, color is introduced through the sampling chamber and the lot checked again after 30 to 40 mins.

Average processing time by this method for scouring and dyeing is 4 to 4½ hrs.

After dyeing, the load is cooled down and rinsed and hoisted out of the dyeing machine. A monorail carries the load to a nearby vacuum extractor. The open beam-end is fitted into the vacuum system, and the load is extracted for 30 mins. Then it is turned 180° and extracted for another half hour.

Special Stand Keeps Batches Balanced

After extraction, the load is hoisted onto a combination roll stand and let-off device developed at the plant. The beam ends are supported by rubber-tired wheels rotated slowly by an electric motor. The wheels keep the roll in motion while it is waiting to be dried, which avoids any lopsidedness that would occur if remaining water were allowed to seep to the bottom of a stationary batch. Unevenly distributed weight in a dyed roll gives trouble in the following drying operation because it is next to impossible to maintain even tension on an unbalanced roll of fabric.

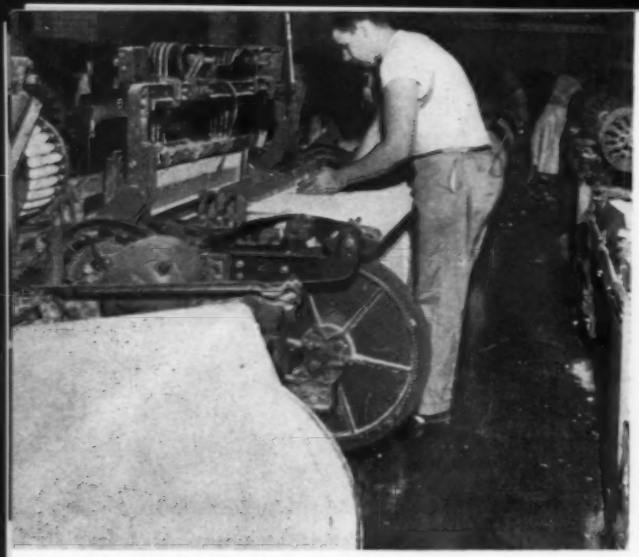


POWER-DRIVEN LET-OFF delivers dyed tricot to tenter frame. Goods drop first into a balanced scray that tips and shuts off power when a few yards of cloth are delivered. Advantage of this system is practically tensionless delivery of fabric to the tenter.

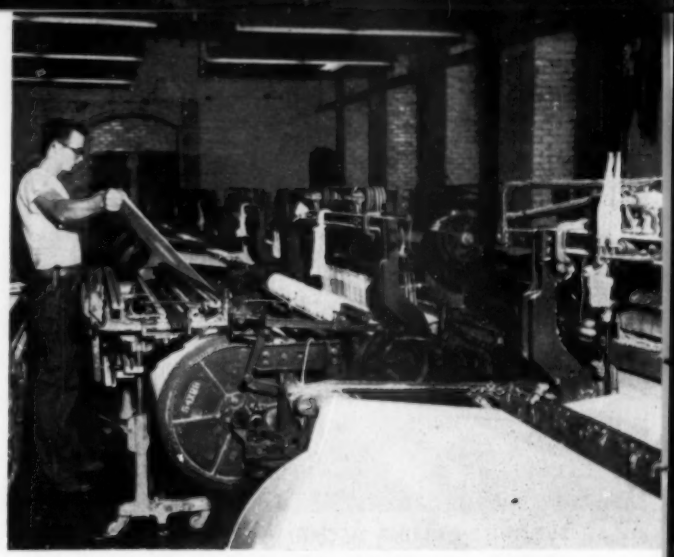
Built into the roll support is a stainless-steel scray that acts as a receiver for the fabric and delivers it to the pin tenters for drying.

In operation, the power-driven wheels that carry the load rotate the beam and the fabric falls in the scray. The scray is pivoted and balanced so that only a few yards of cloth tip the scray and trip a switch that shuts off the power to the supporting wheels. When the scray is nearly emptied by the dryer, it rises and more cloth is delivered. By this method, cloth is supplied to the dryer at very even tension.

Because of the good results obtained with the pressure-dyeing unit, management at this plant is going ahead with plans to install several more machines of this type. Rearrangement of the gray storage area and changes in inspection and handling methods will help to streamline the operation.



WARP IS LEASED by Melvin Dye. The lease is taken from the drop wires with two contact bars up and two down.



WARP IS PUT UP by Larry McFerrin. Both warp sheets are brushed several times to be sure they are straight.

PORTABLE WARP TYING
Gives Straight Warps

• Here's a mill that's switched from stationary to portable tying on 800 looms on cotton warps. The results are straighter warps.

By **RICHARD B. PRESSLEY,** Associate Editor, TEXTILE WORLD

THE JOHN P. KING MFG. Co., Augusta, Ga., recently installed its second portable tying-in machine. This machine follows the installation of the first machine by one year.

Assistant Superintendent Charles R. Bollin has this to say about the machines: "We bought the second machine because the first one was so satisfactory. We think we are getting a very good job, particularly in that our warps are a great deal straighter. But we haven't set this machine up on timestudy yet, and we don't have data on savings and actual cost."

J. L. Hamrick, overseer of weaving, says: "Warps tied with the two machines are the straightest we've ever had."

Fabrics woven at the mill are wide cotton sheetings, bedspreads, drills, twills, and sateens. Cloth ranges in width from 36 to 100 ins. Warp ends per inch vary between 32 and 124. Warp yarn numbers, for example, are 13s, 22s, and 26s.

Tie Warps 46 to 90 Ins.

The new tying-in machines are Titan Model GK6-B. There are seven stands for the machines divided into the following widths: One for 100-in. warps, two for 82-in. warps, three for 60-in. warps, and one for 54-in. warps.

The mill has six types of looms in several widths: E-model, X-2, X, L, XL, and XP-2. At present, warps on only seven widths of looms are being tied with the new tying-in machines: 46, 54, 56, 60, 72, 82, and 90 ins. Cloth width is 44 to 90 ins.

Draper E- and X-model looms 36 ins. wide are set too close together in the weave room to be tied with the machines. Warps on 100-in. L-model looms are not tied with the machines because the patterns are changed frequently. However, warps for these looms will be tied with the new machines later.

Two Machines for 800 Looms

At present, the two machines tie all warps on 800 looms. The looms are in several weave rooms. There's a total of 1,437 looms in the mill. Each machine has a home weave room, but they both float to other weave rooms as they are needed. There are five weave rooms in the mill.

The new machines take the place of stationary warp tying and a small portable machine. Stationary tying is still used for 36-in. looms.

Each new tying-in machine ties from 7 to 13 warps per 8-hr. shift. The number of warps tied depends on the width of the fabric and the number of warp run-outs.

Warps are tied by a three-man crew for each machine. There are an operator and two lease men. The men are paid by the hour.

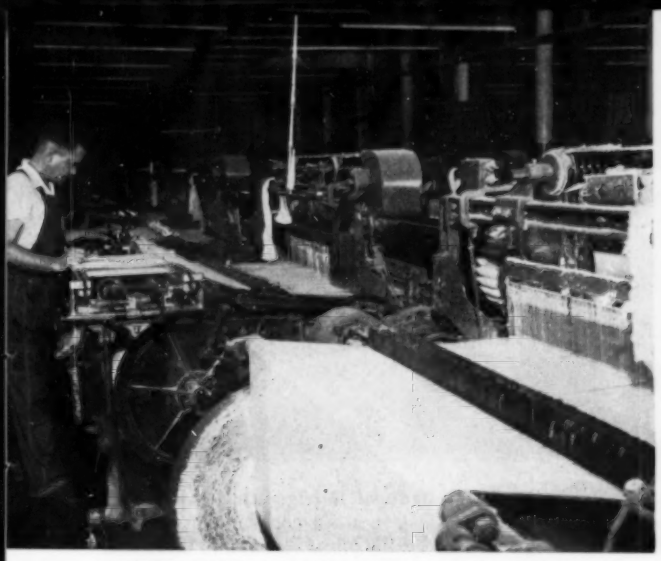
Slashed Warps Aren't Leased

All warps are tied with the patterns in the looms leased from the drop wires in an end-and-end lease. The slashed warps to be tied do not have a lease.

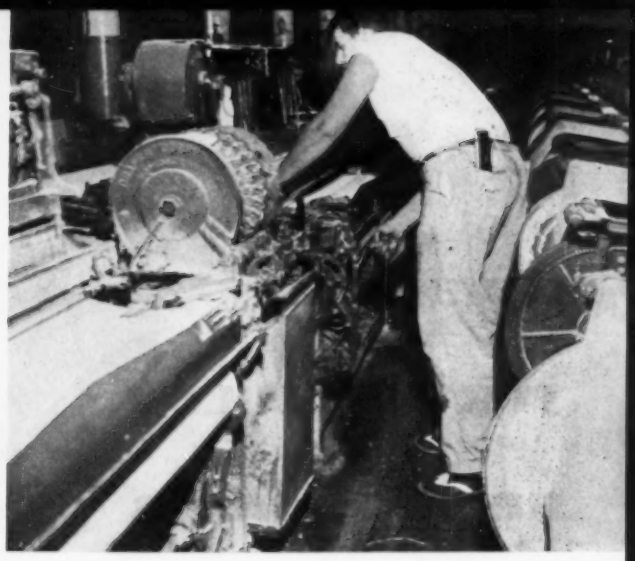
When a warp runs out, a smash hand goes to the loom immediately, checks the pattern, and draws in any ends out.

Then a lease man starts his job of preparing the pattern and the warp to be tied. He follows this procedure:

The connector for the contact bars of the electric warp stop motion is removed, and the contact bars are



WARP IS TIED by A. B. Wren. He does nothing but tie the warp. Two lease men keep busy preparing warps for him.



WARP IS PULLED OVER after it's tied by the same lease man who leases and puts up the warp. The result is straight warps.

placed in a wooden block at each end.

The warp ends are brushed back from the drop wires to the whiproll to straighten the pattern. The back contact bar and the bar next to the front are raised and are held in the raised position by a wire in the wood block. The ends are brushed back again, and an oval-shaped wood lease rod is put in the open lease.

Brush To Keep Straight

The raised drop wires are lowered, and the front contact bar and the bar next to the back are raised. The warp is brushed back again, and the second wood lease rod is put into the warp. Then the contact bars are replaced in their end clamps.

The loom yarn-beam locks are loosened, and the yarn beam is slipped out of the bearing. A wooden clamp is put on the warp 20 ins. from the drop wires. The warp yarn is cut off 16 ins. outside the wood clamp. The clamp is given a couple of turns around yarn. Then the yarn is brushed from the lease rod to the rolled wood clamp.

The back lease rod is pulled back to the clamp; the yarn is brushed back to the clamp; the second lease rod is pulled back; and the lease rods and clamp are rolled in the warp and laid on the drop wires.

Loomfixer Checks Loom

The empty beam is removed with a monorail and hand hoist.

The loom is cleaned by a blow-off man. The loomfixer on the section oils and checks the loom.

Then the lease man returns and greases the harness cams.

He places the new beam in the beam-bearing stand with the hoist. The end of the warp yarn is unfastened from the beam by pulling off a piece of slasher tape put on at the slasher. A second strip of slasher tape is fastened to the warp sheet 40 ins. from the end of the warp.

The stand for the tying-in machine is positioned at the back of the loom; the length of stand used is determined by the width of the warp to be tied.

Preparing New-Warp Sheet

The new-warp sheet is thrown over the frame and around the rotary brush. The inside metal clamp on the frame is fastened over the warp sheet just outside the second piece of slasher tape 40 ins. from the end of the warp. A metal comb longer than the width of the warp sheet is put in the warp, and the warp is combed back from the first clamp to a position near the rotary brush on the frame.

The second metal clamp on the frame is fastened to the warp near the rotary brush. Then the comb is removed.

The warp waste is cut off outside the clamp. The cut-off waste is used for weaver's end-ties. The yarn from the new warp is ready to be tied.

The wood clamp and lease rods are unrolled from the pattern yarn, and the yarn is laid over the new-warp yarn and fastened to the rotary brush.

Always Keep Warp Straight

The warp is brushed from the lease rod to the rotary brush and between the lease rods. The yarn is also brushed forward from the lease rods. The lease rods are pulled back together, and the warp sheet is tightened by turning the rotary brush.

The yarn is combed away from each lease rod with the long metal comb. Then the comb is moved from the lease rod nearest the loom to the front metal clamp on the frame. The front metal clamp is fastened, and the comb is removed.

The comb is run from the back lease rod to the back metal clamp on the frame. The clamp is fastened on the yarn, and the comb is removed. Then the warp is ready for the tying-in-machine operator.

Operator Ties Warps Only

The operator places the tying-in machine on the frame and plugs the electric cord into an electrical outlet.

He pulls the two nylon lease strings on the machine through the warp sheet as he removes the wood lease rods. He sets the angle adjustment on the frame and the warp-yarn tension.

Then he starts the motor on the machine to tie the warp. His only work during the tying operation is to observe the machine action and to adjust the warp angle and tension. The machine ties about 300 knots per minute; the speed depends on the yarn to be tied.

As soon as the warp is tied, the operator removes the machine from the frame and goes to another warp.

Then the lease man returns to the loom to pull the warp over. The frame clamps are removed, and the warp is rolled down. The frame is rolled out of the way. The friction on the Roper let-off is released, and the loom is

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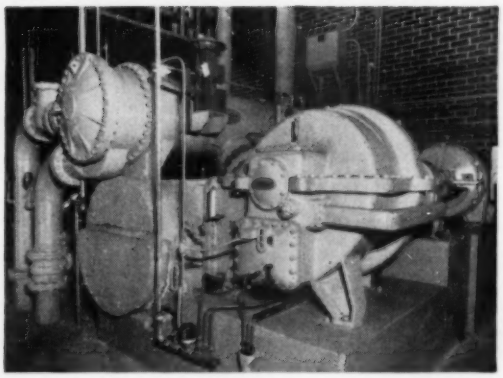
CHEROKEE TEXTILE MILLS REFRIGERATES WITH A CARRIER CENTRIFUGAL



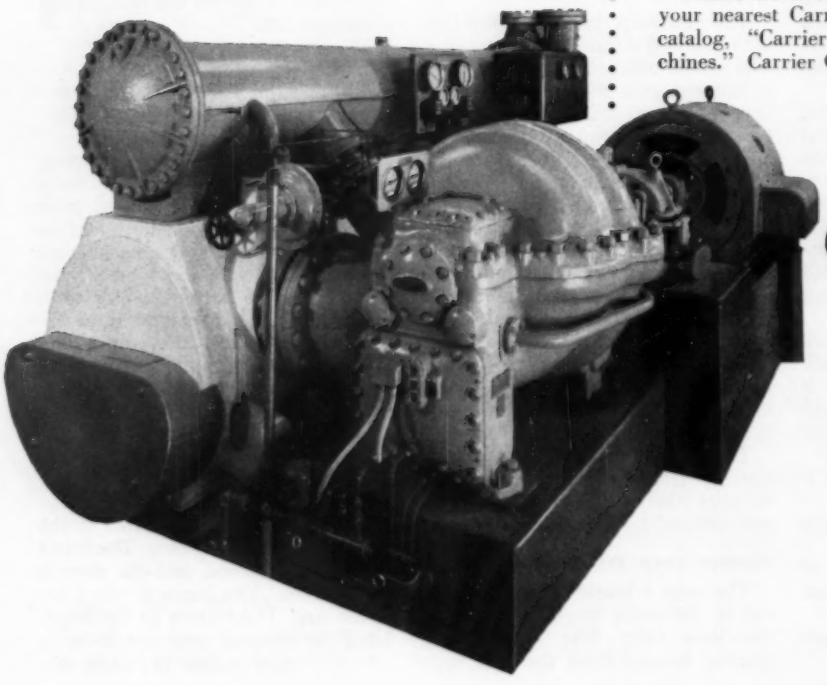
This Carrier Centrifugal Refrigerating Machine is at the heart of the several air conditioning systems serving Cherokee Textile Mills, Sevierville, Tenn. The centrifugal is driven by a 500-hp electric motor and cools 1880 gallons of water per minute from 62° to 54°. Picking, blending, preparation, spinning, carding and cloth rooms are all air conditioned. Climate in the plant office is controlled with a Carrier Reciprocating Compressor and a multi-zone air conditioning unit.

Carrier Centrifugals serve dependably, often around the clock, in many other mills—Amerotron, Deering Milliken, Stonecutter, Greenwood.

Carrier developed the first centrifugal refrigerating machine in 1922. Carrier has built more of them —by far—than all other makers combined.

For unbeatable performance, why not insist on Carrier Centrifugal refrigeration for your mill? It can serve dependably as the heart of any air conditioning system. Carrier Centrifugals are available in many sizes, from 100 to 4000 tons cooling capacity.

Make use of our experience and assistance. Call your nearest Carrier office. Or write for our free catalog, "Carrier Centrifugal Refrigerating Machines." Carrier Corporation, Syracuse, New York.



Carrier

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refrigeration

industrial heating

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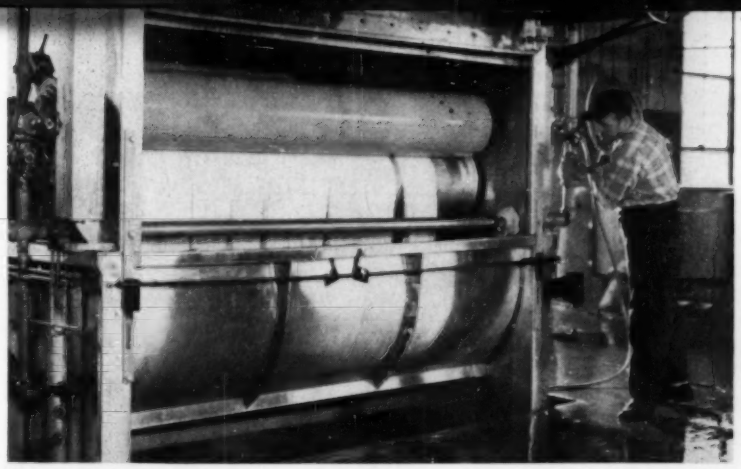


CLOSE-COUPLED TUBS of these Rodney Hunt becks cut down waste space and save expensive scouring liquor.

How Thomas Wilson & Co. Cut LACE-SCOURING Costs

Thomas Wilson & Co. at Port Jefferson, Long Island, was faced with the perennial problem of lace dyers: how to get economical scouring of graphite-loaded lace. It got the answer by—

- **Using a low liquor-to-lace ratio**
- **Reworking the scouring beck to save detergent**

By PAUL PLATZMAN

SCOURING LACE has always been a problem with lace dyers because of the graphite used as a lubricant on the lace-making machines.

Thomas Wilson & Co., Inc., had the scouring problem pretty well licked as far as cleanliness of the lace was concerned; but the cost was too high.

Because of the graphite, a very heavy scour is necessary; and the scouring material is especially compounded for the purpose. Wilson & Co. uses a casein-based scouring agent and applies it to the lace on a basis of 2 lbs. of scouring agent to 1 lb. of lace. The scouring agent as received at the plant is diluted with five parts of water to make up the viscous working solution that effectively removes and suspends the graphite.

But ordinary dyebecks were so designed that a great deal of scouring liquor was wasted in areas not actually occupied by the lace. So Wilson & Co. installed two specially designed Rodney Hunt becks that have short tubs.

The standard drain trough that normally runs along under the bottom of the becks was removed and outlets provided at each end of the beck. That saved 8 gals. more of the costly scouring liquor.

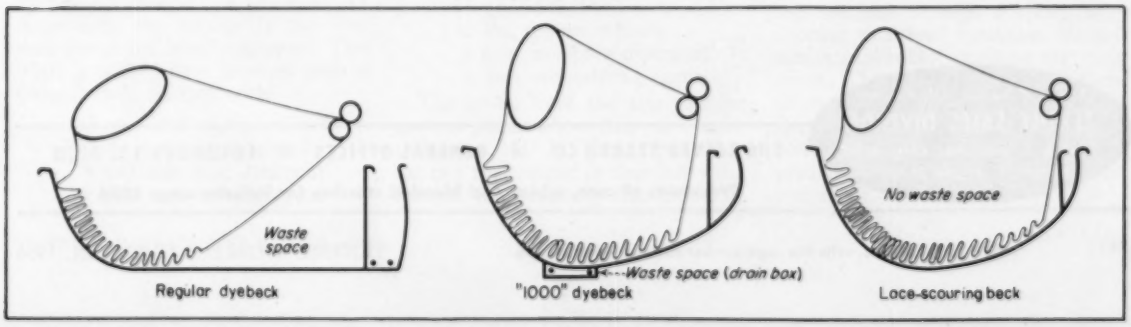
How Scouring Is Done

A typical scouring routine at the plant starts with charging the beck with 600 lbs. of scouring liquor to handle 10 to 12 strings of lace 6 yds. wide and 38 yds. long—about 300 lbs. of lace. The scour liquor is kept at 80° F. because higher temperatures would damage the lace.

The efficiency of the scour comes from the very active, cationic scouring material and the squeezing action provided by two heavy rolls mounted on the beck. The top roll is rubber covered and works against a stainless-steel bottom roller. Both rolls are 18 ins. in diameter and are raised or lowered by air pressure of 80 psi. on the diaphragms.

The redesigned becks require only 50 to 60 gals. of scouring liquor per load, compared to up to 200 gals. needed for a conventional beck. Savings actually run to as much as one barrel of scouring materials as bought in every five runs.

CHANGES IN DESIGN from regular dyebeck to the final modification to lace-scouring process is shown in these diagrams.



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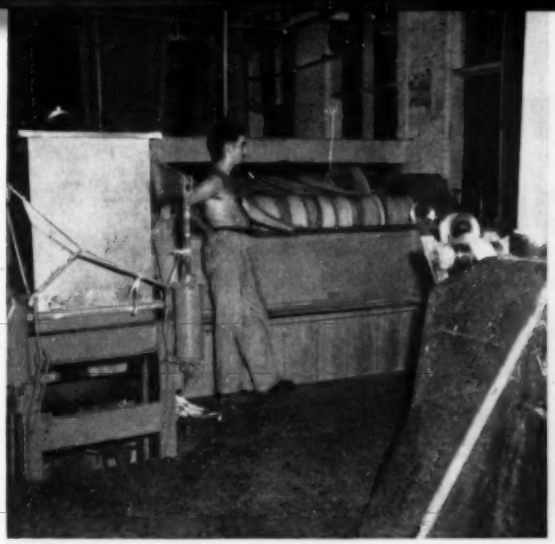
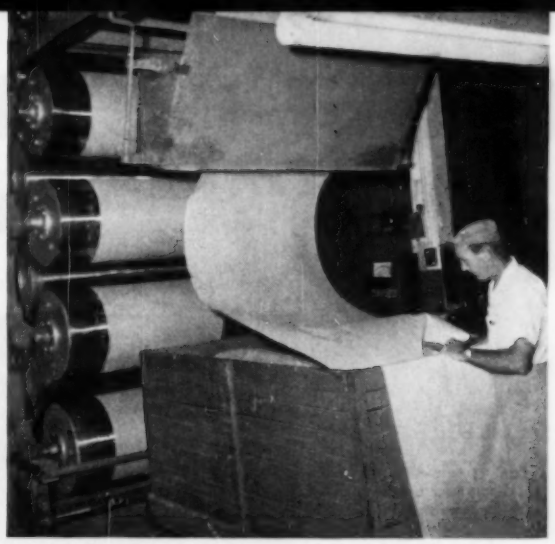


SLACK WASHERS with five compartments are used after singeing, between peroxide-bleaching stages, and after bleaching.



STAINLESS-STEEL DRY CANS operate at 40 lbs. per sq. in. and can handle over 100 yds. per min.

How Russell Mfg. Co. Handles COLORED-YARN FABRICS

- Russell Mfg. Co., Alexander City, Ala., has worked out a routine for finishing colored-yarn fabrics that gives consistent results day in and day out.
- A two-stage peroxide bleaching range, the heart of the process, produces in excess of 100 yds. per min. on one of the staple lines, a 90x60 4.53-yd. fabric.

By **ROBERT W. PINAULT,** Assistant Editor, TEXTILE WORLD

STYLE TRENDS have brought back colored-yarn shirtings and dress goods rather sharply in the past year, and today these fabrics make up a considerable part of Russell Mfg. Co.'s bleachery production.

Russell depends on a two-stage peroxide bleaching range for the primary processing. The first step is to singe the goods thoroughly and then pass them through a quench box charged with a 2% solution of desizing agent. The goods are then piled in bins for 2 to 4 hrs. to allow the size time for conversion to sugars.

The majority of soluble material is then washed out with hot water in an open-width washer. Connected in range with the washer is the first saturator in the bleaching range. The fabric is soaked in a solution from a 500-gal. tank charged with:

90 qts. 35% H_2O_2
200 lbs. sodium silicate
4 gals. nonionic detergent
4 gals. sequestering agent

The goods leave the saturator and are pulled into a well-insulated stainless-steel J-box, where they remain for at least 1 hr. at a temperature of 212° F. Then they are led into a compartmented rope soaper where the first section carries a solution of nonionic detergent at 180° F. Detergent is fed to the compartment periodically.

The temperature in succeeding rinsing sections is dropped off to 130 to 140° F., and the partly bleached goods enter the second peroxide saturator. Here a weaker solution is sufficient to finish the job. A normal charge for the 500-gal. tank is:

55 qts 35% H_2O_2
125 lbs. sodium silicate
4 gals. nonionic detergent
4 gals. sequestering agent

The goods leave the saturator for another J-box, where they remain for an hour at 212° F. Then a final washing in a rope soaper in clear hot water removes the bleaching chemicals. The cloth is dried on a stack of stainless-steel dry cans carrying 40 lbs. steam pressure.

Finishing procedures vary with customers' demands. Russell is equipped for and does considerable resin finishing on colored-yarn fabrics, as well as plain starch and oil finishes.

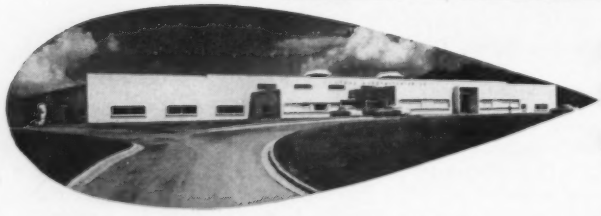
For the finishing, a modern pad, predryer, and tenter are set up in range. Gas is used as the heating medium, providing enough heat to dry 4.50 yds. of goods at better than 100 yds. a minute. For the resin finishes, a separate curing dryer of the loop type is being used at present.

Most of the dress goods and shirtings are put through a compressive shrinker as a final operation. Russell uses a rubber-belt machine for these goods. This type of shrinker produces an excellent surface on both sides of the fabric; and with care, the rubber belts give up to 24-million yds. of production before they require replacement.

End of the Line for *Lint*

Bank of Auto-AIRMATS on one of the four air conditioning systems (totalling 138,000 cfm) serving the Stone plant. Filters installed overhead to conserve floor space.

Air conditioning system designed by DEPARX STIMSON, Winston-Salem, N. C.; installed by BUENSOD-STACEY, INC., Charlotte, N. C.

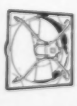


Auto-AIRMAT Filters Assure Lint-Free Air For Stone Manufacturing Company

The "Creators of Stone's Wear Apparel" made sure that lint in recirculated air would never hamper production of their quality line of petticoats and children's play clothes. They equipped their Greenville, South Carolina plant with AAF Auto-AIRMAT filters—the *only* filters designed to remove lint fibres from the air and clean themselves, at the same time!

The AIRMAT media, installed in roll form at top of unit, becomes a moving filter curtain that is rerolled at bottom with its lint load. Clean media is introduced automatically, and the lint is wrapped up in the roll for easy disposal. Get all the facts about the Auto-AIRMAT. Call your local AAF representative, or write direct for Bulletin 234.

Herman Nelson Unit Blowers



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Control TWIST of Ply Yarns By Checking Frames Often

If you don't keep a tight checkrein on your twister frames, twist is apt to get out of control. Here are a few tips for closer twist control—

- **Keep tapes at the proper place on spindles**
- **Establish a tolerance for whorl diameters**
- **Repair top rolls with worn journals**
- **Eliminate sticking of travelers**

By FRANK VOGEL, Consultant on Statistical Quality Control

THE TWIST OF COTTON PLY YARNS is generally easy to control if the twister frame is in reasonably good condition. Carelessness by employees —for example, using the wrong twist gear—sometimes causes errors in the twist. To prevent such errors, a check test of twist should be made by the foreman or a laboratory employee when a frame is started on a new yarn or when a change is made in the plies.

Twisters are of two general types: one with band-driven spindles and one with tape-driven spindles. Tape-driven spindles give the most-satisfactory twist results.

On band-driven spindles, the bands must be checked each day. If bands aren't checked, a band may become slack and the yarn on that spindle will be under the standard twist. The whole bobbin may have to be put in waste.

Keep Tapes in Place

On tape spindles when the spindle rails are cleaned, the thin brush used to clean between the spindles may displace the tape on one or two of the four spindles usually driven by one tape, as shown in Fig. 1.

Then if the top section of the spindle is of a different diameter than the whorl, the twist will not be standard. The difference will depend on the amount of variation in the diameter of the two parts. For example, if the diameter at the dislocated tape position is greater than the whorl, the speed of the spindle will be lower than normal. Consequently less twist will be inserted.

Variations in twist from differences in spindle speeds also occur when the whorls on band-driven spindles are worn unevenly.

In a study at one mill, the diameters of whorls on band-driven spindles were checked with a caliper. The diameters varied greatly, and the twist per inch also varied in proportion to the variation in diameter.

Experiments were made with the speed of the spindles with various diameters of whorls. A range of diameters was determined that gave acceptable twist per inch. Then the spindles were segregated with a definite range of diameters to each twister.

A section of 25 of the older twisters was rearranged. The spindles were moved so that there are two definite groups of whorl diameters. Badly worn whorls were scrapped.

After the whorls were segregated, another problem in obtaining the proper twist came up: should the

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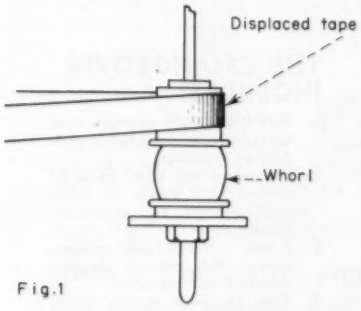


Fig. 1

DISPLACED TAPE makes the spindle run at a different speed. Then the twist is not standard.

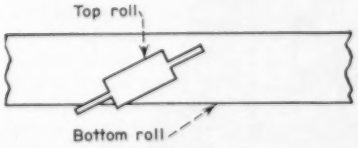


Fig. 2

WORN JOURNALS in the top roll cause the roll to set at an oblique angle to the bottom roll.

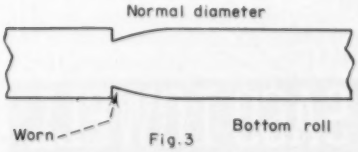


Fig. 3

WORN PLACE in the bottom roll results from worn journals in the top roll.

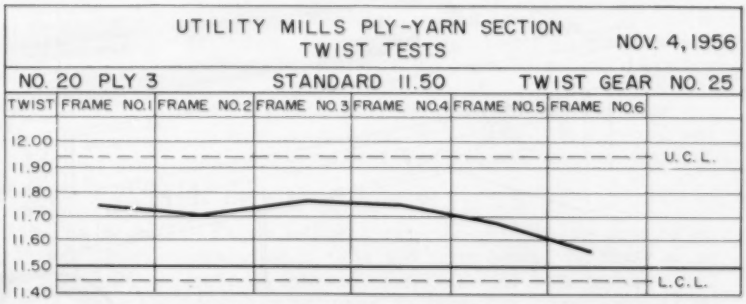


Fig. 4

U.C.L. = UPPER CONTROL LIMIT
L.C.L. = LOWER CONTROL LIMIT

GRAPH RECORD of test on twist variation on six twister frames helps control twist variation.

85 lb. Laps!

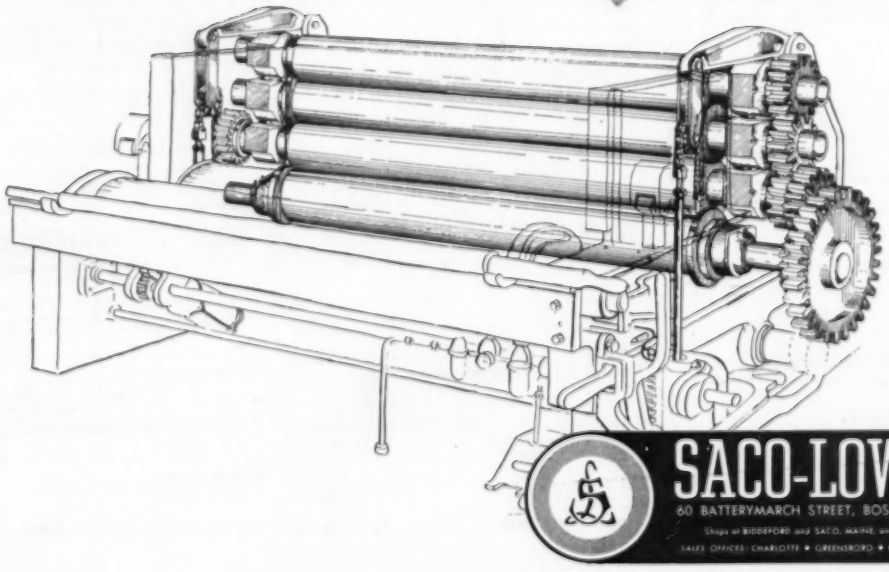
NEW HIGH COMPRESSION CALENDER ROLL CHANGEOVER FOR SACO-LOWELL PICKERS

CUTS COSTS 4 WAYS:

1. Produces improved 85 lb. laps.
2. 60% more yardage in the same overall diameter as that previously used.
3. Big laps run longer on the card.
4. Reduce creeling and front waste.

THE CHANGEOVER INCLUDES:

1. New high-tensile strength steel calender rolls, mounted in anti-friction bearings.
2. Hardened cut steel gears of special tooth design for maximum strength and a smooth, steady drive.
3. A new "leverage type" pressure system that almost doubles conventional pressures.
4. New knock-off motion gears for increased yardage.



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POINTERS for SUPERVISORS

Why Good Supervisors Inspire Better Job Performance

• The most effective supervisors are the ones who have found a way to get their workers to cooperate. Here are some ideas about the techniques used by successful supervisors to get the job done.

By **M. A. CROSS,** Director of Industrial Relations, Dan River Mills, Inc.

A few months ago, there appeared in this column a very interesting report on how 25 successful supervisors "get the job done." Their comments, capsuled down to a short paragraph for each of the 25, represented a grass-roots viewpoint on the important supervisory responsibility of gaining effective cooperation. This was no ivory-tower approach. It was an account of the particular techniques a group of effective supervisors had used, and used successfully, to inspire better performance.

Without attempting to rank these various techniques, let me comment briefly on some of them that you might want to incorporate into your own approach to this vital job of getting cooperation.

1. Guard against hurting pride

A week or so ago, I was privileged to hear an inspirational address by Dr. George Heaton of Charlotte, N. C. A minister by profession, Dr. Heaton has won a deserved reputation for his understanding of the industrial-relations scene and has frequently been called upon as a consultant in employee relations and supervisory training problems.

One of the points he made in his talk was that any action that bruised human dignity created friction. He went on to stress that any friction that developed between supervisor and employee was an impediment to understanding and prevented the formation of the kind of attitudes that encourage full release of individual talents.

While our religious training may emphasize humility as a positive virtue, it is nevertheless the fact that most of us possess personal pride in substantial degree. We have an ego that is sensitive to real or imagined injury and is easily wounded. Thoughtless actions that in our minds cause us to "lose face" bruise human dignity, create friction, as Dr. Heaton has stated, and form a barrier to effective cooperation.

Therefore, as supervisors, we should plan our actions and our words to take into account the natural pride that exists in the people we supervise; and we should not damage that pride if we can possibly avoid it.

2. Be careful of what you say and how you say it

Essential to the process of gaining cooperation is an understanding on the part of the employee of what his supervisor expects. If the employee is confused about what he is to do, when and how he is to do it, and why it is to be done at all, it is difficult for him to approach the task with interest and enthusiasm. Thus it is important that what you say is put in words that carry exact meaning to the employee so that you cut down the possibility of misunderstanding and mistakes.

How you say it is equally important—not only in terms of the actual words and phrases used but also in terms of your manner of speaking and the attitude you display. I have encountered many employee-relations problems where, once the smoke was cleared away and the actual facts known, it was apparent that the real issue was not what the supervisor had said but the way in which he had said it.

I have known situations where two supervisors have used virtually the same words in reprimanding employees for poor performance, with spectacularly different results. In the one instance, the employee accepts the reprimand as a helpful measure to prevent repetition of an error in the future. In the other, the employee is resentful and feels that the supervisor has been scornful and derogatory of the employee's motives.

So it's important that you plan carefully what you intend to say and then that you say it in a manner and displaying the attitude that conveys your real meaning.

3. Be a good listener

This is scarcely a new thought, but we must be reminded of it again and again because so many of us are poor listeners. Busy with our own problems and sometimes entranced by the sound of our own voices, we may listen half-heartedly to what a worker has to say and then spend most of the time answering his problem in philosophic and global terms that fail to cut to

CONTINUED ON PAGE 171

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POINTERS FOR SUPERVISORS

CONTINUED FROM PAGE 169

the heart of his dilemma.

Recently I had a stimulating discussion with a personnel executive of a textile company that has earned an outstanding reputation for the excellence of its employee relation, as well as for the efficiency and success of its operations.

He stressed the importance the top management of his company attaches to the ability of supervisors to be good listeners. They are trained in it and are expected to practice it. I left our discussion with the conviction that the willingness and ability of the supervisory staff of that company to listen, and listen well, to their subordinates was the key to their success in employee relations.

This, too, needs to be said; and here I quote the words of the supervisor who said that being a good listener was his pet method of getting maximum results: "When you're a good listener, you draw your workers out—get them to thinking more about the work, developing their own ideas, and taking a greater personal interest in the job."

4. Discuss job problems

One supervisor stated that he had gotten maximum cooperation by discussing job problems with all the workers involved. He found that his employees would put out extra effort when they had a chance to help work things out.

I think this result is to be expected. Most of us like to be consulted about things that affect our work. We feel better about our jobs when our superior has enough confidence in our judgment to enlist our ideas and assistance. Even if we are not empowered to make the final decision, the fact that we had an opportunity to be heard boosts the spirit and enlists cooperation.

Unquestionably, many opportunities for discussing job problems with employees are let go by default. It may be customary to consult a skilled mechanic on a complicated maintenance problem and largely give him his own head in working it out; it may not be customary at all to talk over job problems with employees on routine or semiskilled production jobs.

Yet these employees will generally respond to the same stimuli as their more-skilled associates and will welcome the opportunity to have a measure of participation in working out plans that have a bearing on their particular tasks.

5. The supervisor is not a ringmaster

One supervisor said that the hardest thing he had to learn was that he was not a ringmaster and that he did not get the best results when he functioned primarily as a watchdog over his people.

What is his meaning? I take it to be that since his first duty was to get things done through other people, he had to learn the methods that gained willing cooperation from his employee group and that functioning as a ringmaster was not such a method.

People simply do not react like trained dogs or trained seals. Cracking a whip or blowing a whistle may be the best way to signal trained animals to follow their routine; this supervisor found it was not the best way to inspire the people in his department to make the most of their talents.

In this day and age, the emphasis is on leadership. In the plant scene, the supervisor who relies on the role of a ringmaster will seldom get and keep the kind of cooperation that calls for extra effort and devoted duty from his employees.

HOW INDIAN HEAD BLEACHES & FINISHES SHEETINGS

CONTINUED FROM PAGE 145

helps in producing good cover and a clothy hand. In this particular setup, where goods come from bins, mangling also evens up moisture content.

Sheetings and pillowcases get a simple starch-and-oil formula in the starch mangle and are then led onto a short tenter. The tentering operation serves to bring the goods to an even width, and it is on the tenter that filling is straightened.

Straight Filling Is a Must

At Indian Head, two straightening mechanisms are used. At the entering end a tilting-roll device that may be controlled manually or automatically takes care of major faults in filling-thread alignment. Then an interference-type electronic eye, mounted about halfway down the tenter, automatically corrects for residual differences in alignment. This weft-straightener actuates a differential drive on one tenter chain so that it may be speeded up or slowed down in relation to the opposite chain.

A stack of 56 cans dries and completes the continuous-finishing operations on the sheetings. Calendering and double-doubling prepare the sheetings for fabrication.

Because bleachery production potential is in excess of gray-mill production, Indian Head solicits and finishes commission work. In addition to equipment for doing its own sheeting, other machinery has been installed for producing special mercerized finishes, dyeing, resin-treated fabrics in crease-resistant and wash-and-wear finishes, chasing-calendered finishes, and a wide duplex compressive-shrinking machine.

A line that is growing in popularity is colored-stripe sheetings, which Indian Head produces in a medium-price group in much the same way as the all-white fabrics are handled. The continuous-peroxide bleaching method is used but with a modified prepare that does not affect the colored stripes. Finishing procedures are the same as for white or dyed fabrics.

DIRECT LABOR COST FOR YARN

CONTINUED FROM PAGE 91

twist added. By using a spinner's rate of $0.300 per hank and a doffer's rate of $0.100, the total direct-labor cost for spinning is:

$$\frac{\text{20s yarn} \times \$0.400 \text{ per hank}}{264 \text{ spindles per frame}} =$$

$0.0303 cost per lb.

Twisting

When 20/2 yarn is twisted on 240-spindle frames, the pounds per hank are:

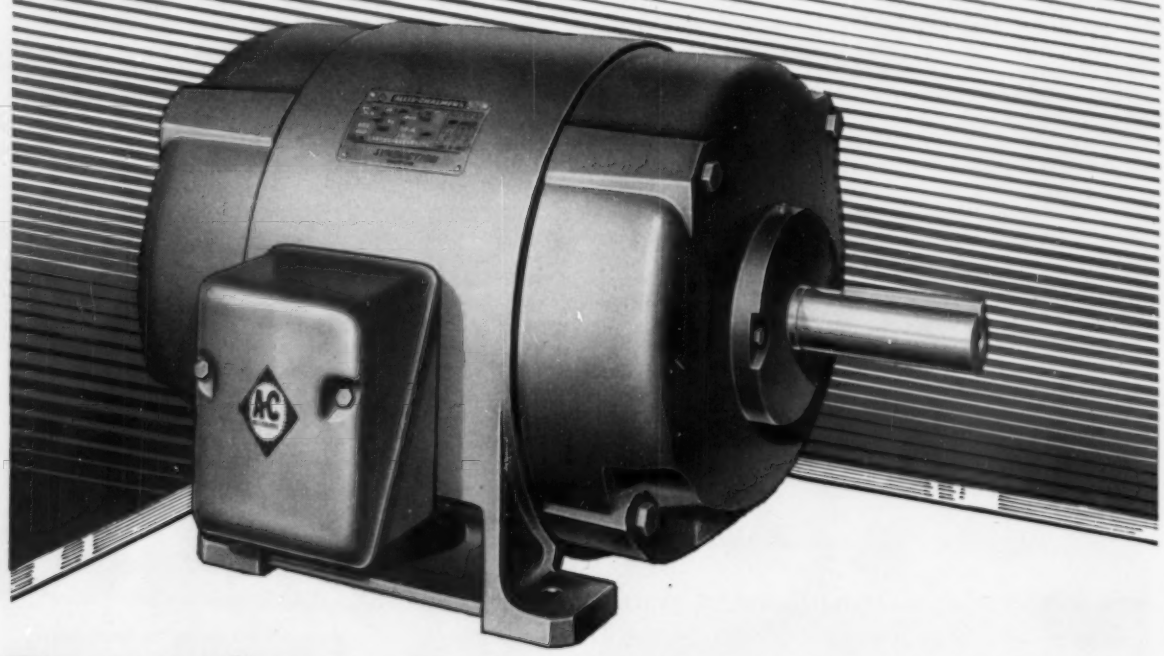
$$\frac{240 \text{ spindles}}{10\text{s yarn}} = 24.0 \text{ lbs.}$$

By using a twister-tender and doffer rate totaling $0.600 per hank, the direct-labor cost for twisting is:

$$\frac{\text{10s yarn} \times \$0.600 \text{ per hank}}{240 \text{ spindles per frame}} =$$

$0.0250 cost per lb.

NEW *Synduction* MOTOR



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- . . . Constant speed, regardless of load or voltage, depending only on frequency.
- . . . Synchronized speed for a number of motors.
- . . . Adjustable speed with minimum variation at any speed setting.

Synchronous Speed with Induction Simplicity

Allis-Chalmers new development — the *Synduction* motor — offers these characteristics at low cost — with the dependability of an induction motor. In addition to constant speed from no load to pull-out, it also offers across-the-line starting, wide range of speeds and high efficiency. It's another example of MORE motor pioneering by Allis-Chalmers.

Allis-Chalmers invites your inquiry, in the belief that many processes can be improved by the application of *Synduction* motors. Our engineers will gladly analyze your present operations to help you determine where *Synduction* motors can be applied profitably. Call your A-C office or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin, for Bulletin 51B8440.

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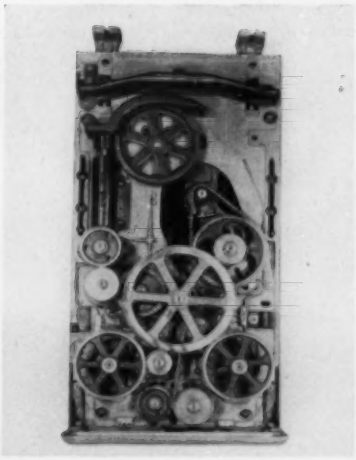
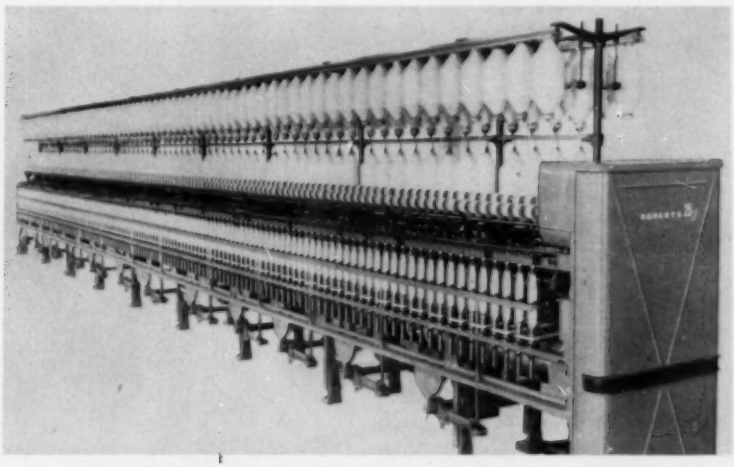
EQUIPMENT and SUPPLY NEWS





Narrow Spinning Frame

A spinning frame 25 ins. wide has been announced by Roberts Co., Sanford, N. C. Using 30-in. aisles, the frames save 25% floor space over conventional equipment.

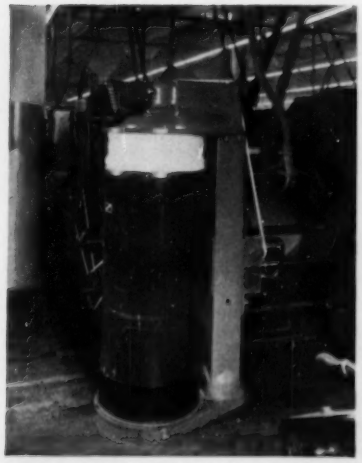
The frames have the Roberts 34° double-apron drafting, ball-bearing spindles, built-in suction cleaning, umbrella creels, and 8-in. cylinders.

The head end has 30 grease-sealed ball bearings of one size; no plain bearings or studs are used. All gears in the head end are hardened and have one pitch, one bore, one width, and one key size.

Two wrench sizes fit all shafts and tightening points. Draft constant can be varied from 400 to 3,200; the lay is adjusted for coarse or fine numbers by a simple gear change.

Drafts from 10 to 60 are available for 2s to 100s yarn, spun from cotton, synthetic staple, or blends. Small, medium, or large packages can be made on the frame. Gauges are 3 to 4½ ins. Filling can be spun directly onto 8- or 8¾-in. quills; warp can be spun on bobbins up to 12 ins. in length from rings up to 3 ins. in diameter.

Circle T-1 on Reader-Service Card



Card Coiler

A card coiler that can put a 56-lb. lap in an 18x12-in. can has been announced by Gossett Machine Works, Inc., 2023 W. Franklin St., Gastonia, N. C.

Features include a ball-bearing suspended tube gear that eliminates oiling the track. The can wheel is driven by an oil-submerged worm-gear assembly that keeps cans from jumping. The base, sealed to keep waste from getting in or under the can wheel, is so rigid that shims are not needed for plumbing.

Circle T-2 on Reader-Service Card

Trap for Slasher

A permanent magnetic ferrotrap developed by Eriez Mfg. Co., 1425 Grove Dr., Erie, Pa., protects homogenizers and rubber-covered slasher rolls from damage caused by rust particles in the starch. It also prevents rust spots in finished cloth.

Two of the ferrotraps are installed in the liquid-starch line between the size-mixing kettles and the homogenizers. Accumulated rust particles adhering to the magnetic fingers in the ferrotrap are easily removed periodically by withdrawing the one-piece magnetic assembly and wiping the rods clean.

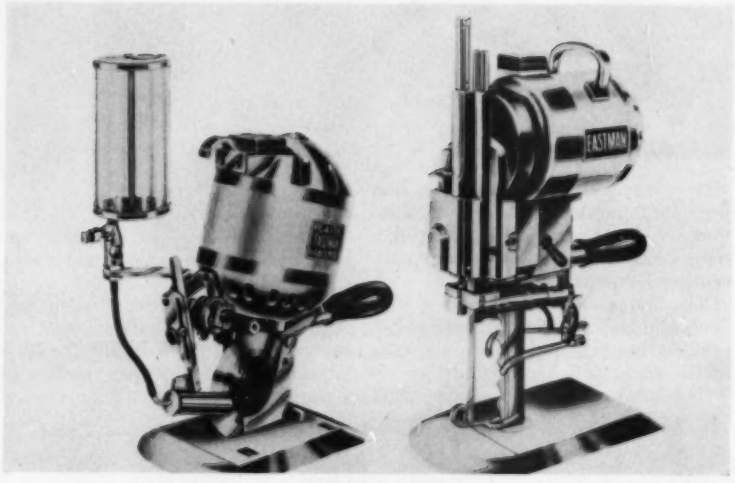
Circle T-3 on Reader-Service Card

Cutting Machines

Fabric-cutting machines with straight or circular knives have been marketed by Eastman Machine Co., 779 Washington St., Buffalo 3, N. Y.

The straight-knife machine features a knife from which 80% of the cutting edge has been removed to minimize friction. The circular-knife model has a lower gear ratio and is equipped to supply a blade lubricant where necessary.

Circle T-4 on Reader-Service Card



Automatic Abrasion Tester

An improved abrasion tester has been marketed by Taber Instrument Corp., 111 Goundry St., Section 114, North Tonawanda, N. Y. The instrument, called Model 174, is equipped with dual abrading wheels that traverse a complete circle on the surface to be tested and a control that may be set for 10, 100, or 1,000 cycles of abrading action. The machine can also be set for continuous operation.

A variety of holders for testing different types of material are supplied with the machine, as are two sets of stainless-steel weights. The weight of the abrading arm, plus the two sets of weights, provide three degrees of pressure for test purposes.

Abrading wheels are obtainable to suit the materials to be tested.

Circle T-5 on Reader-Service Card

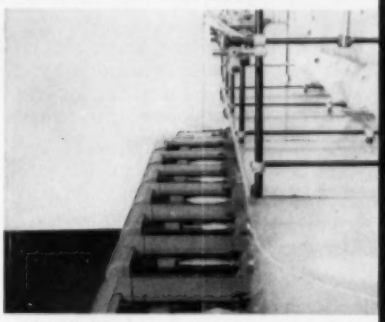
FOSTER-MUSCHAMP MODEL 66*

Automatic Filling Winder

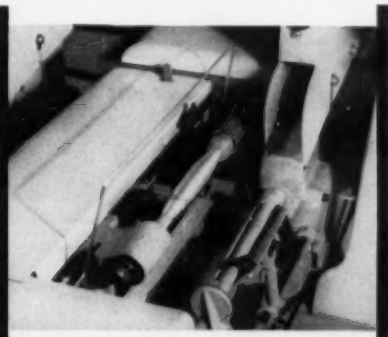
A NEW HIGH IN WINDING QUALITY · A NEW LOW IN WINDING COSTS

The Foster-Muschamp Model 66 Automatic Filling Winder produces uniformly perfect bobbins (without starting tails) with a spindle speed of 15,000 r.p.m. and with a winding cost as low as ¼¢ per lb. The following illustrations show some of the reasons why.

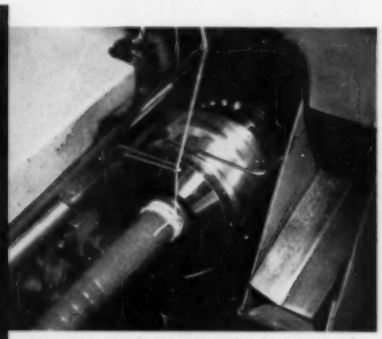
*Manufactured in Westfield, Mass.



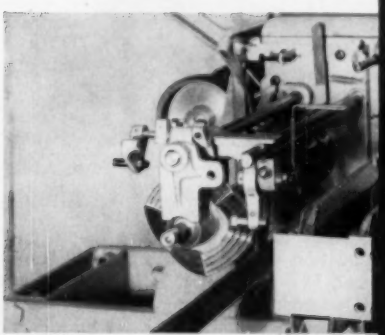
Straight line delivery from poteye to thread guide. No false tension. No undue strain on yarn.



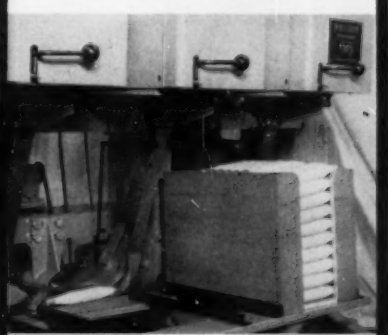
Feelerless build. Automatic donning and doffing of bobbins.



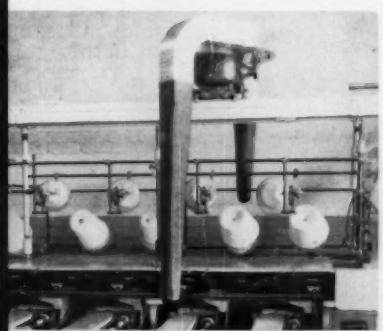
No starting tail. Secured under first wraps of bunch. Trapped alongside driver during transfer cycle.



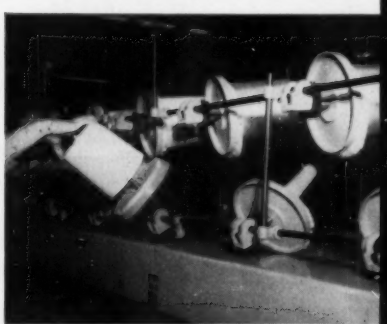
Exterior cam permits knots to be placed behind traverse and on outside of bobbin.



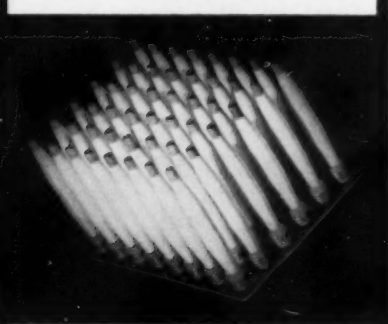
Automatic filling box stacker for spun yarns. (Automatic pinboarding for filament yarns).



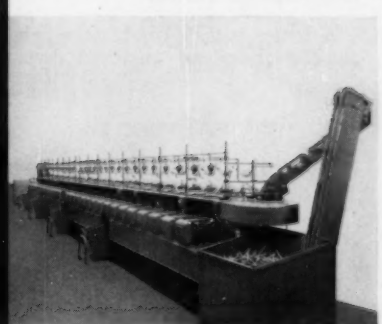
Automatic lint cleaner. Overhead traveling blower type.



Loading magazine creel. This and piecing up broken ends are only manual operations.



Model 66 bobbins. Note perfect build and uniformity. No starting tails.



Typical installation showing centralized empty bobbin hopper with capacity of 2000 bobbins.

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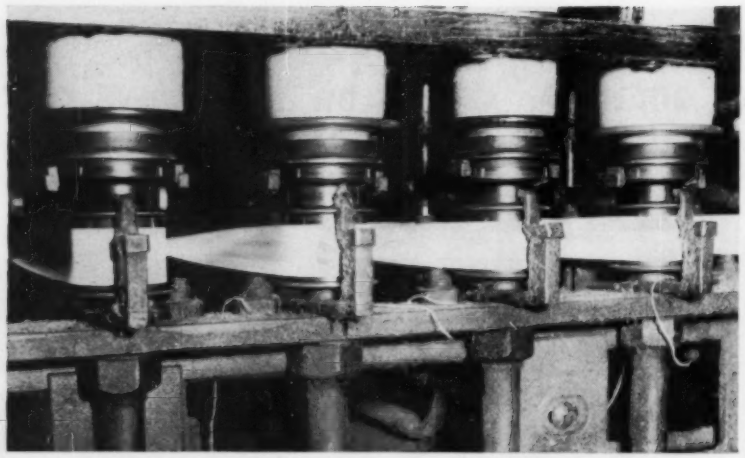
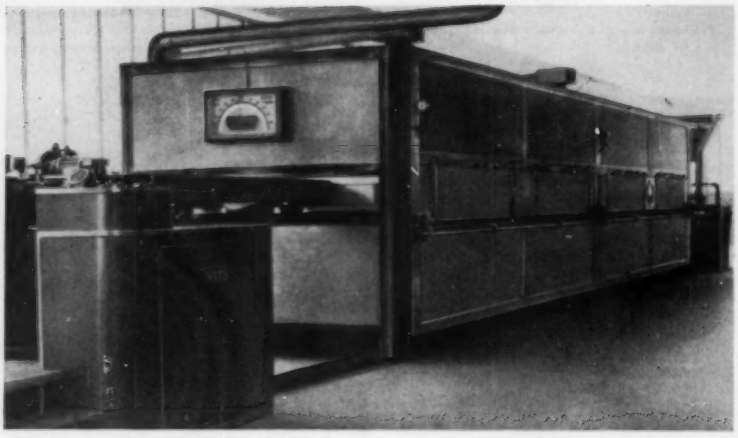


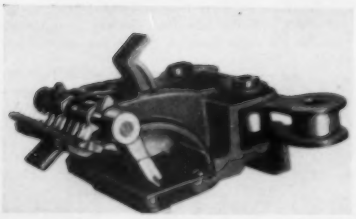
Circle T-6 on Reader-Service Card

Spindle Drive

A new spindle drive, Supr-O-Band, has been announced by Benjamin Booth Co., Allegheny & Janney Sts., Philadelphia 34, Pa.

Designed for twisting, roving, and spinning frames, the drive offers improved yarn quality and increased production because the tough surface gives long operating life and provides high-friction drive for maximum spindle speed. It can be sewed, cemented, or fastened by belt hooks.





High-Speed Tenter

A tenter with a combination pin-and-clip chain and improved drying equipment has been announced by Cosa Corp., 405 Lexington Ave., New York 17, N. Y.

The tenter chain operates with automatic change-over so that either the pins or clips engage the fabric to be dried.

Axial-flow fans produce ample circulation of a mixture of 65% steam and 35% air, heated to 300 to 400° F. This drying medium is said to prevent oxidizing, yellowing, or overdrying of the fabrics being handled.

Specific steam consumption of the tenter is 1.4 lbs. of steam per pound of water evaporated. A 30-ft. tenter has an evaporative capacity of about 1,300 lbs. of water per hour.

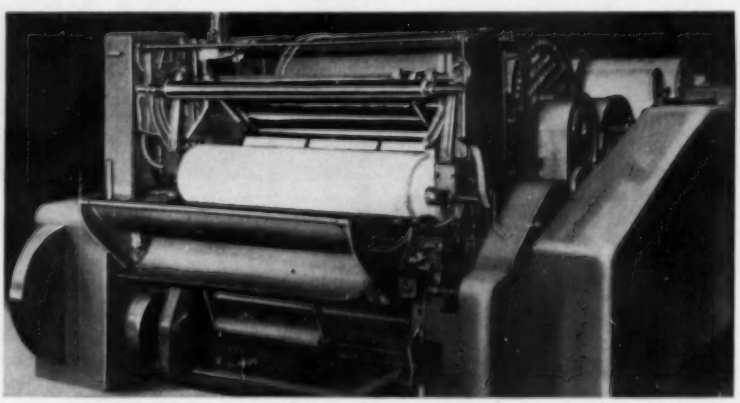
Circle T-7 on Reader-Service Card

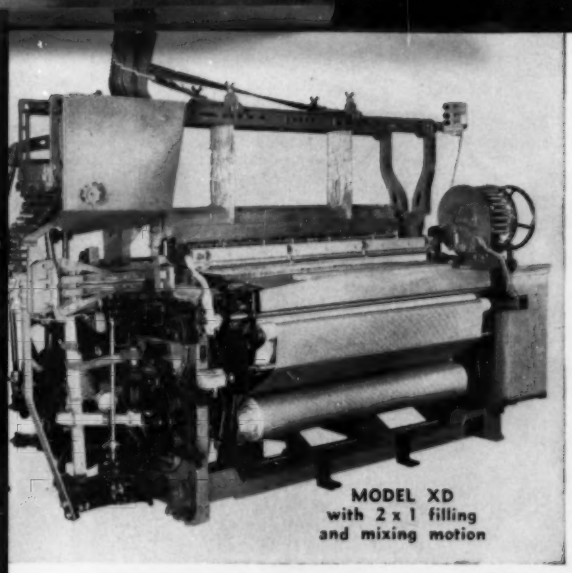
Automatic Doffer for Scutcher

An automatic doffer has been developed for use with its scutcher by Tweedales & Smalley Ltd., Castleton, Rochdale, Eng. The doffer increases machine efficiency 15% by cutting out downtime formerly required to change laps manually.

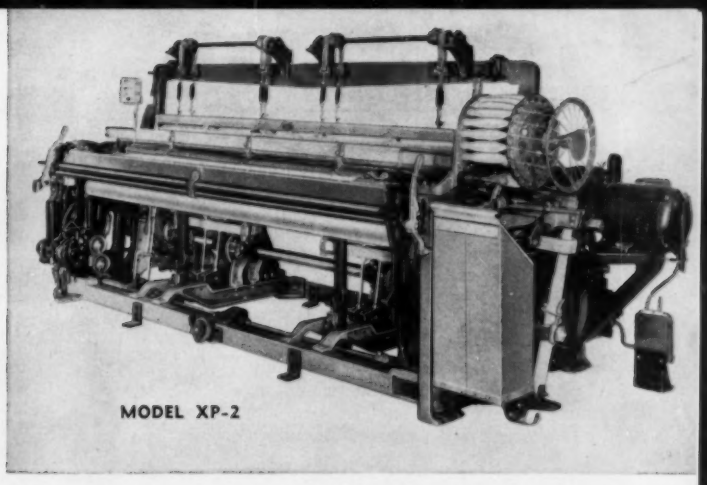
Other advantages include greater lap evenness, since there is no piling up of cotton on the cages and no variation between the first and last yards of the lap. Larger work assignments are possible, and maintenance is reduced.

Circle T-8 on Reader-Service Card





MODEL XD
with 2 x 1 filling
and mixing motion

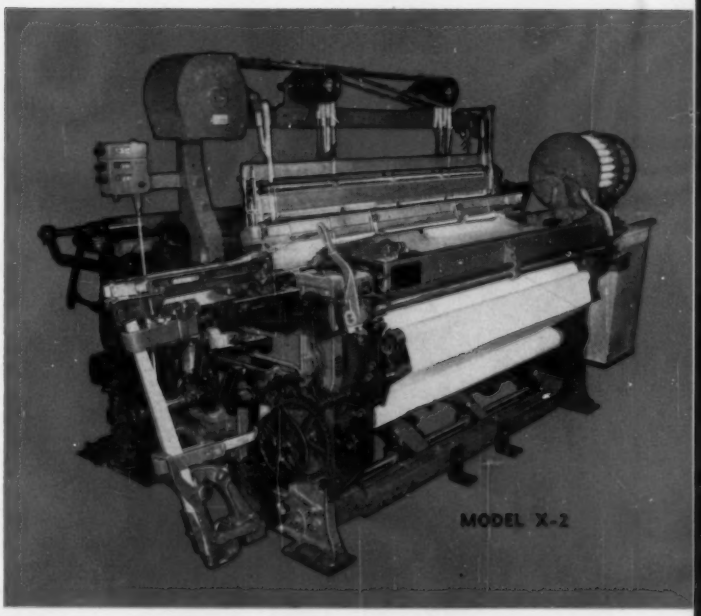


MODEL XP-2

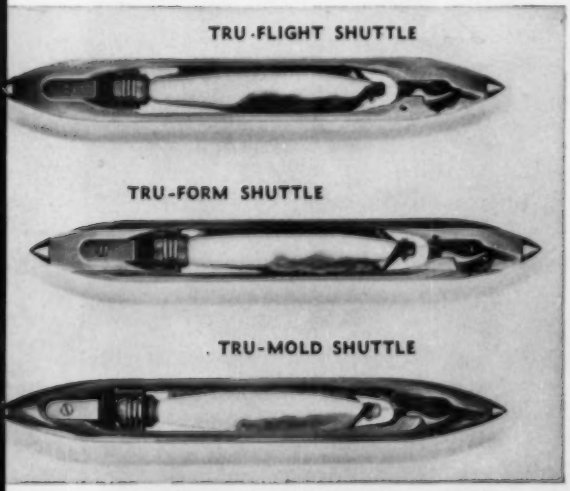
DRAPER LOOMS ARE THE WORLD'S FINEST SINGLE SHUTTLE LOOMS

Draper High-Speed Automatic Looms, featuring many new developments, are today's accepted standard for production, economy and versatility in weaving. Available in several models and widths, Draper looms are currently in use in textile mills throughout the world.

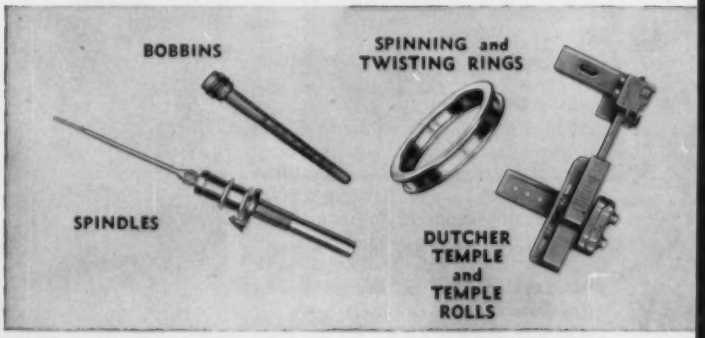
Draper looms, accessories and repair parts reduce weaving costs.



MODEL X-2



DRAPER PARTS AND ACCESSORIES FOR BEST PERFORMANCE



DRAPER CORPORATION / HOPEDALE, MASS.

ATLANTA, GA. GREENSBORO, N. C. SPARTANBURG, S. C.

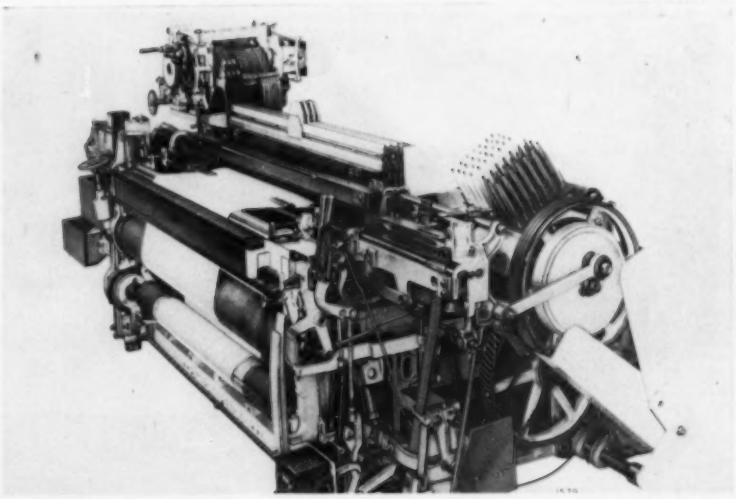
Archless Loom

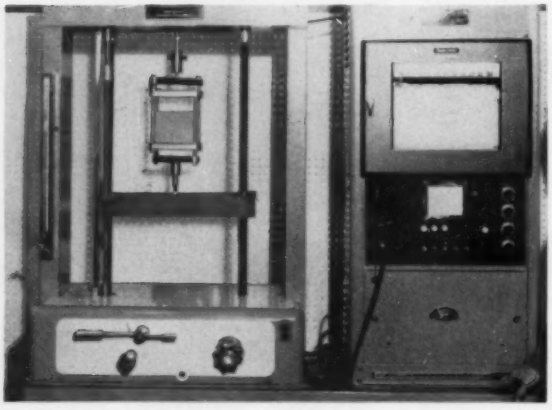
A rayon and silk loom with a low-mounted dobby is announced by George Hattersley & Sons Ltd., Keighley, Yorkshire, England. The loom has no overhead arches, and harnesses are driven by dobby underlevers. The highest part of the loom is 58 ins., and consequently vision across a weave room is clear.

The drive is by individual motor, and the lay may be reversed to back center by power by lifting a lever.

The loom runs four shuttles for up to four colors of filling, and shuttles are changed automatically.

Circle T-9 on Reader-Service Card





Tester

A tester that will evaluate tensile strength, hysteresis, and compression from zero to 2,000 lbs. has been announced by Scott Testers Inc., 95 Blackstone St., Providence, R. I. The Model CET has speeds to 40 ins. per min., stroke to 72 ins., and variable loading to 2,000 lbs. Stretch of the specimen can be magnified on the chart to 200 times actual size. The machine can test a wide variety of materials in addition to textiles.

Circle T-10 on Reader-Service Card

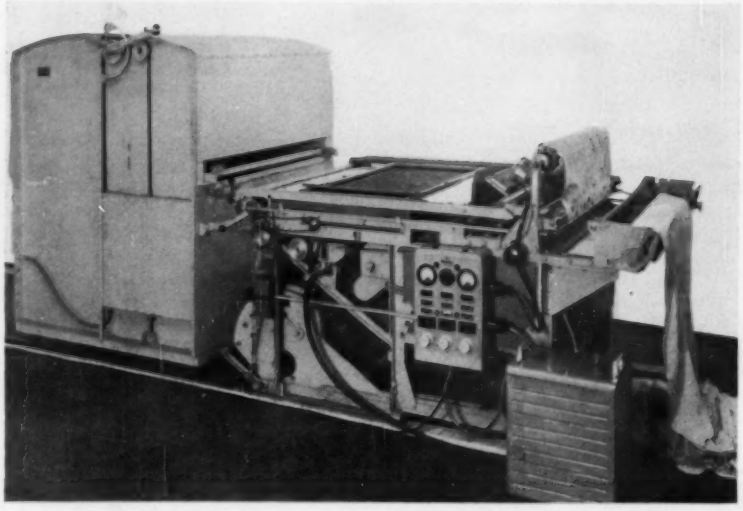
Screen and Flock Printer

A compact screen- and flock-printing machine has been marketed by Reisinger Apparatebau, Vienna 8, Austria. The machine can produce from one to six colors and requires only one operator.

Washing, gumming, and drying units are included in the machine, which is obtainable in working widths of 1 yd. and 1½ yds. Pattern repeats are adjustable from 16 to 36 ins.

Production of one color is from 220 to 275 yds. per hr.; multicolor work is proportionately less. By means of extra attachments, ribbons may be flocked or printed.

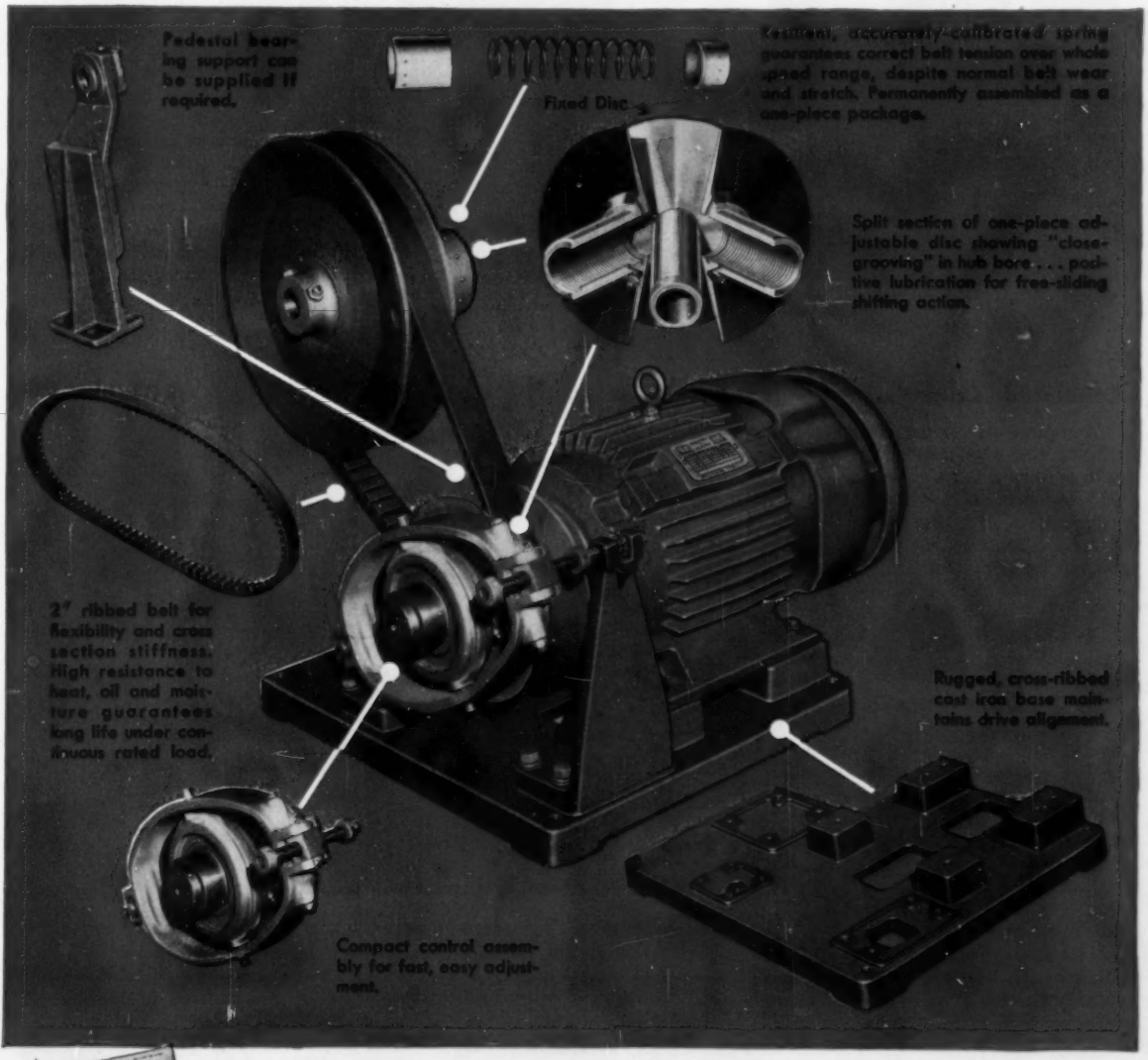
Circle T-11 on Reader-Service Card

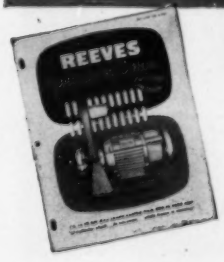


REEVES Vari-Spin®

MILL TESTED AND PROVED

Spinning Frame Drive: The drive that reduces fixer labor costs, increases spinning production, quantity and quality! 7½ to 15 hp! Any speed setting from 500 to 1450 rpm. at cylinder shaft . . in *seconds . . . while frame is running!*


Pedestal bearing support can be supplied if required.
Fixed Disc
Resilient, accurately-calibrated spring guarantees correct belt tension over whole speed range, despite normal belt wear and stretch. Permanently assembled as a one-piece package.
Split section of one-piece adjustable disc showing "close-grooving" in hub bore . . . positive lubrication for free-sliding shifting action.
2" ribbed belt for flexibility and cross section stiffness. High resistance to heat, oil and moisture guarantees long life under continuous rated load.
Rugged, cross-ribbed cast iron base maintains drive alignment.
Compact control assembly for fast, easy adjustment.



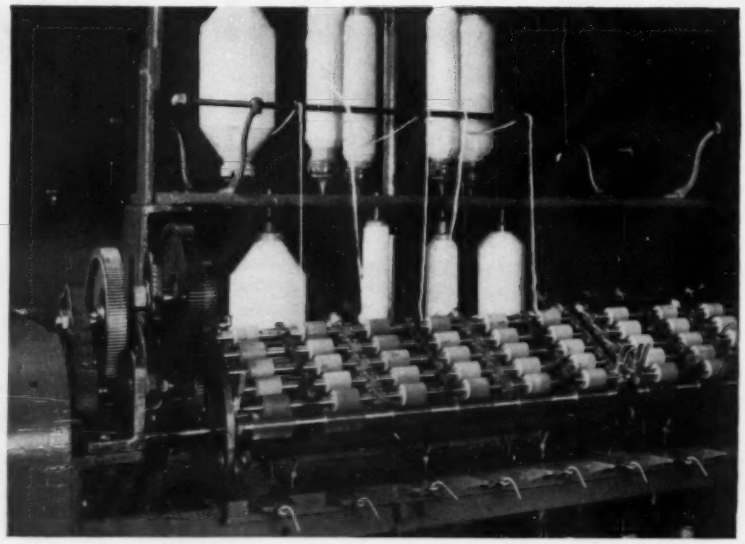
For complete rating data and dimension charts, write for BULLETIN W27A-G561.

REEVES PULLEY COMPANY

DIVISION OF **RELIANCE** ELECTRIC AND ENGINEERING CO.

Columbus, Indiana

For more data, write this page number on Reader-Service card. →



Circle T-12 on Reader-Service Card

Drafting System

A five-roll double-zone drafting system that can draft to 100 without the use of cradles or aprons has been developed by Southeastern Textile Machinery Co., Inc., P. O. Box 583, Ranlo, N. C.

The system is designed especially for synthetic fibers but can be used for cotton by a simple adjustment of the roll settings. Elimination of the rolls and cradles reduces the cost of cleaning and replacement parts.

The manufacturers claim that one to two roving processes can be cut out in spinning medium, coarse, or fine numbers. Breaking strength and appearance of yarn spun from synthetic fibers is said to be good, and synthetic fibers to 6 ins. long have been successfully spun in tests.

Southeastern Textile Machinery Co. holds patents on the drafting system.

Convertible Carpet Loom

A narrow wilton carpet loom that can be converted from wire weaving to face-to-face weaving in only 1½ days is being manufactured by Wilson & Longbottom Ltd., Barnsley, England.

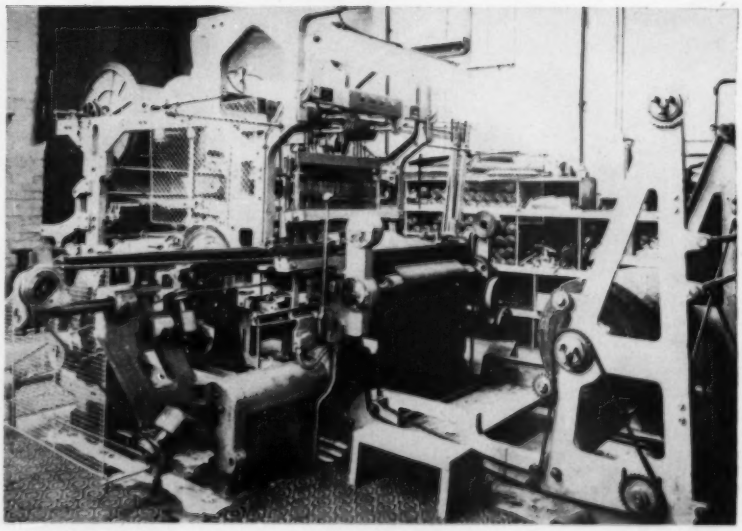
As a 27-in.wire loom on a plain weave, the loom operates at 145 ppm.; as a jacquard loom, it operates at 125 ppm.

As a face-to-face loom, it operates at 90 to 95 ppm., which is effective to 180 to 190 ppm.

So that it can be converted from a wire loom to a face-to-face loom with double shuttles, the loom is equipped with a wire-motion slide and a knife-cutting bench. Provision is also made for two take-up-roller assemblies. Beam stands have space for four beams.

A warp stop motion covers breaks on the bottom chain warp and the pile warp. The bottom chain warp and pile warp have let-off motions.

The loom has a stop motion for filling breaks. Electric feelers stop the loom before the filling runs completely off a bobbin. Warp stop motions and feelers are connected to a central panel so that a weaver can see at a glance the cause of the stoppage.



Ball bearings and roller bearings are used on the crankshaft, take-up roller, tappet shedding motion, and other parts.

The loom has an individual electric drive, electromagnetic brake, and full forward and reverse switch gear.

Circle T-13 on Reader-Service Card

Variable-Speed Drive

A variable-speed drive that controls the speed of take-ups for textile-finishing and cloth-inspecting machines at any speed between 105 and 2,300 rpm. is announced by Electro Dynamic Div., General Dynamics Corp., 163 Ave. A, Bayonne, N. J.

The motors for the control range in size from ¾ to 3 hp. The control circuits provide constant torque capability from ratios of 20 to 1 to as high as 60 to 1. Speed changes may be made from remote points while the machine is in operation. The controls are mounted in a wall cabinet.

Circle T-14 on Reader-Service Card

PRESTOW

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You're going to see more and more of the name PRESTOW.

Every Stowe-Woodward roll with the exception of our special formulas such as Microrok, Sealskin, etc. will be called PRESTOW.

We hope you'll remember the name and use it; but more important, we hope you'll remember what it stands for . . . Stowe-Woodward roll craftsmanship . . . accuracy, consistency, fine finish, close control of density and crown . . . all of the factors which result in trouble-free performance on the machine.

Ask your Stowe-Woodward Sales Engineer about the advantages of PRESTOW rolls in your mill.

"RUBBER ROLLS with a REPUTATION"

STOWE-WOODWARD, Inc.

Craftsmen in rubber rolls

NEENAH, WISCONSIN • NEWTON 64, MASS. • GRIFFIN, GEORGIA

For more data, write this page number on Reader-Service card. →

Batt-Making Equipment

The Series 700 garnett and Series 680 feeder are offered as improved batt-making equipment by Proctor & Schwartz, Seventh St. at Tabor Rd., Philadelphia, Pa.

The garnett will produce up to 500 lbs. per hr. of average batting.

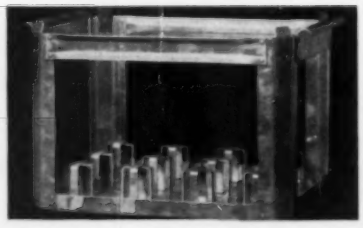
When incorporated with auxiliary units, the machines are capable of completely automatic production of batts.

Circle T-15 on Reader-Service Card

Textile Trays

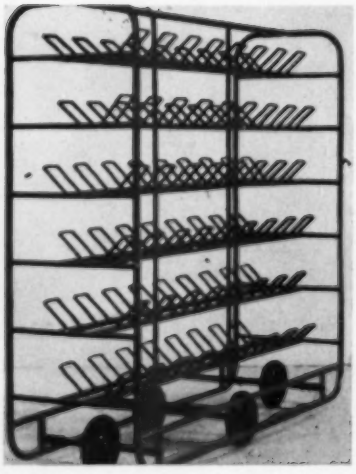
Trays for handling cakes, cones, cheeses, and pirns of synthetic yarns have been developed by Thompson Textessories, St. George's Works, Lancaster, England. The trays are made from fabricated lightweight high-tensile-strength aluminum alloy.

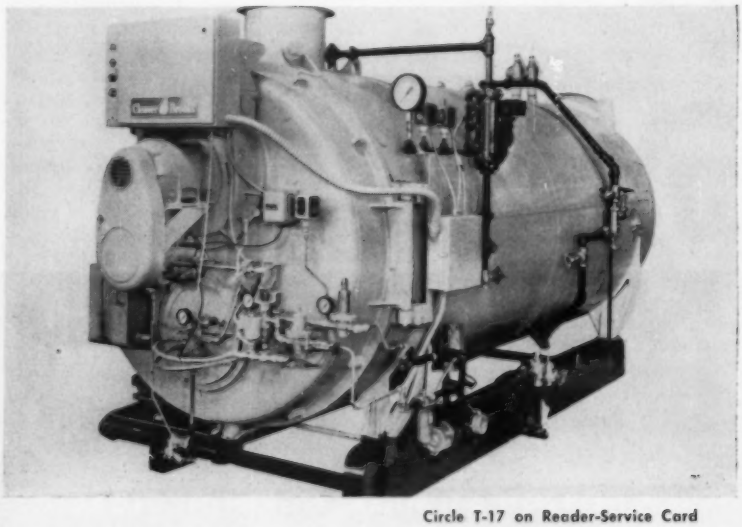
Each tray is designed to customer's needs to transport yarn. They are made with a solid- or lattice-type base. Interlocking bars on the trays keep the yarns from touching projections.



The trays do not rust, and they withstand temperature and humidity changes.

Circle T-16 on Reader-Service Card





Boiler With Controls

A 200-hp. boiler introduced by Cleaver-Brooks Co., 326 E. Keefe Ave., Milwaukee 12, Wis., has a full-modulating burner, silent oil pump, and davited rear and front doors that expedite tube removal and cleaning. Operation is very quiet.

Controls are designed for ease of operation, reliability, and safety.

There are 12 boiler sizes from 12 through 200 hp.

Circle T-17 on Reader-Service Card

machinery for worsteds, synthetics and blends

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(CO-BUILDERS OF FRANCE'S FIRST ATOMIC REACTOR)

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FRAMINGHAM, MASS. · CHARLOTTE 2, N. C.

SOCIETE ALSACIENNE
DE CONSTRUCTIONS MECANIQUES
MULHOUSE, FRANCE

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Latch-Needle Fleece Machine

Model TIF knitting machine, built by Supreme Knitting Machine Co., Inc., 94-02 104th St., Ozone Park 16, N. Y., is a multiple-feed, sinker-top, latch-needle machine designed to produce fleece fabrics for coating, sweatshirts, underwear, linings, and sportswear. The machine knits up to 35 yds. of fleecy fabric per hour.

The tie-in yarn separates the face yarn from the back of the cloth and enables all the lay-in yarn to appear on the face to form an ideal napping surface.

The fabric has a clean jersey back, and it retains the elasticity of plain jersey fabrics.

One common cloth made on the TIF machine requires a three-feed setup. The first feed is a lay-in feed where the fleece yarn is fed in a certain pattern. The tie-in yarn is fed at the second feed and is knitted with the main yarn at the third feed. Unlimited stitch and lay-in variations are possible, and the machine can be adjusted to obtain one or more consecutive knit or lay-in feeds depending on the fabric desired.

Because the lay-in or fleece yarns are tied in without forming a knitted loop, there is no limit to the yarn size. Model TIF can be easily changed to vary the laid-in pattern by changing the pattern-wheel setting at every third feed.

The machine has a stationary yarn stand and cam box with a revolving cylinder, interlocking cam raceway, tripod construction, and interwinding floating take-up. There are top and bottom stop motions with warning light signals, cloth drop-out detectors, multidisk clutch, and inserted-wall cylinders fitted.

Circle T-18 on Reader-Service Card

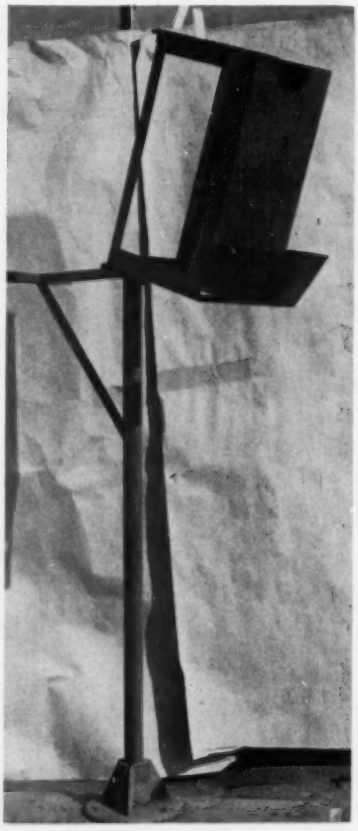
Filling Rack for Looms

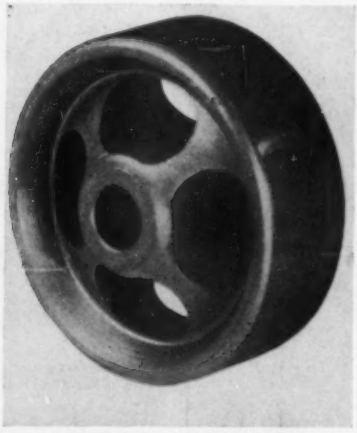
A filling rack for mounting at the loom is being manufactured by Bennett Rose Co., P. O. Box 8, Roebuck, S. C. The rack is placed near the loom battery and is mounted on the floor so that loom vibration does not slough off the filling.

The box used with the automatic stacker on Abbott quillers is brought to the loom with the bobbins inside. The full box is inserted in the rack while the rack is in a horizontal position; then the rack is tilted to a vertical position.

When the rack is in the vertical position, the bobbins flow into the spout. Batteryhands remove the bobbins from the spout easily and quickly. Because the bobbins are correctly positioned in the rack for plugging into the loom battery, batteryhands stand normally erect and plug the battery faster with less physical effort.

Circle T-19 on Reader-Service Card





Textile-Mill Casters

Powder-metal wheels manufactured by Bassick Co., Bridgeport 2, Conn., are said to offer great strength and concentricity for smooth, easy rolling. They will be furnished in place of plain-bearing semisteel wheels at no increase in prices.

Special wheels for textile plants have two improvements: (1) a slightly crowned tread surface makes swiveling easier, especially under heavy loads, and (2) both 2½- and 3-in. sizes have thread guards.

Circle T-20 on Reader-Service Card

High-Speed Tricot Machine

Designed for continuous commercial speeds of 1,250 courses per minute, the F. N. F. Super machine, made by F. N. F. Machinery Mfg. Co. Ltd., Burton-on-Trent, England, is made in 84-in. width.

The machine can be run with chains or pattern wheels to make a wide variety of plain and fancy fabrics. The machine is equipped to accommodate large-capacity 21-in. flange-diameter beams.

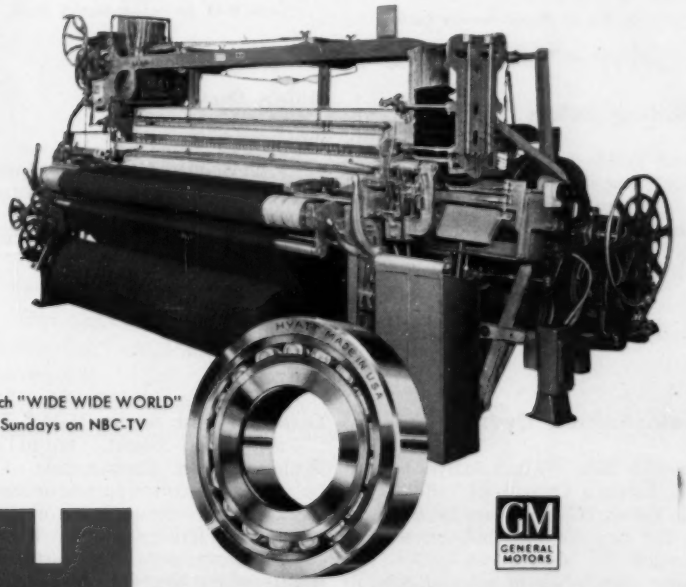
A flywheel-controlled tension system gives a sensitive yarn control. A new take-up system gives cloth control over the full knitting width and operates while fabric is being removed.

The tubular needles are produced in two-needle sections by the pressure die-cast method. Needles and guides have been specially hardened and chromium plated to withstand wear of dull yarns. The guide bars are steel to

CONTINUED ON PAGE 240

how do HYATT Bearings fit into this picture?

The *Better* your *Bearings*, the *Finer* your *Fabrics!*



Watch "WIDE WIDE WORLD"
Sundays on NBC-TV

Roller bearings are the farthest thing from this gentleman's mind as he critically studies his appearance in the fitting-room mirror. But HYATTS played a vital role in guarding the fabric quality so clearly reflected in the suit he's about to buy!

Maintaining critical settings is no problem when your looms, preparatory and finishing machines are equipped with ultra-precision HYATT Hy-Roll Bearings. HYATTS eliminate the excessive internal clearance of worn plain bearings, which so often disrupts critical settings and downgrades otherwise top-quality textiles. HYATTS also save up to 40% on power, up to 98% on lubrication, prevent damage from oil spatters and cut maintenance costs way down. *Be sure to specify HYATT Hy-Roll Bearings on all your new or modernized equipment—it pays!*
Hyatt Bearings Division of General Motors, Harrison, New Jersey.

GM GENERAL MOTORS

HYATT HY-ROLL BEARINGS
FOR TEXTILE INDUSTRY

For more data, write this page number on Reader-Service card. →

NEW DYES and CHEMICALS

Antistatic Agent

Merix Anti-static 79-OL . . . can be added in warping operations or included in finishing materials to produce an antistatic finish. The product is neutral and can be mixed with most conventional finishing materials. Merix Chemical Co., 1021 E. 55th St., Chicago 15, Ill.

Circle D-1 on Reader-Service Card

Leveling Agent

Lyogen DK . . . levels the varying rate of strike of different dyestuffs in a bath. Useful in dyeing direct and vat colors, the product has no substantivity for cellulosic fibers and will not interfere with subsequent processing. The dyes are not affected in tone, fastness, or dischargeability when this product is used in the dyebath. Sandoz Chemical Works, 61 Van Dam St., New York 13, N. Y.

Circle D-2 on Reader-Service Card

Acrylic Thickener

Acrysol ASE-60 . . . an acid-containing crosslinked emulsion copolymer recommended for adjusting the viscosity of latices of the acrylic type. Supplied as a milky liquid of 28% solids and low viscosity, the product produces highly viscous solutions of 5% solids when diluted and neutralized. The thickener may be added to latices or other emulsions as shipped and then thickened after mixing. Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.

Circle D-3 on Reader-Service Card

Dull Finishes

Wicatex Duller 3192 . . . a 50% cationic dispersion of titanium, is a substantive duller recommended for synthetic fibers and fabrics.

Circle D-4 on Reader-Service Card

Wicatex Duller 3140 . . . a 25% anionic product, is recommended for inclusion in regular finishing mixtures. Wica Chemicals, Inc., P. O. Box 546, Old Concord Rd., Charlotte, N. C.

Circle D-5 on Reader-Service Card

Fluorescent Dye

Calcofluor White 4BT . . . recommended as a whitening agent for Acrilan. The product has excellent lightfastness and does not require an extra process for application. American Cyanamid Co., Dyes Dept., Bound Brook, N. J.

Circle D-6 on Reader-Service Card

Shading Colors

Ortol Yellow F4G, Ortol Scarlet FG, Ortol Blue FG, and **Ortol Green B** . . . designed for shading the Ortolan dyes, possess brilliance and good fastness properties. Nova Chemical Corp., 153 Waverly Place, New York 14, N. Y.

Circle D-7 on Reader-Service Card

Premetallized Dyes

Lanasyn Blue BRL, Lanasyn Brown GL, Lanasyn Orange RL, and **Lanasyn Yellow 2GL** . . . have been added to the Lanasyn line and are recommended for dyeing wool, silk, or nylon. Shades are of superior general fastness. Sandoz Chemical Works, 61-63 Van Dam St., New York 13, N. Y.

Circle D-8 on Reader-Service Card

Anionic Softeners

Melotone AM . . . designed especially for cotton and synthetic fabrics, is resistant to yellowing during processing and will not discolor or develop odors on ageing.

Circle D-9 on Reader-Service Card

Melotone K . . . is recommended for knit goods.

Circle D-10 on Reader-Service Card

Melotone Liquid . . . suggested for handling in tank trucks or where pumping is desirable. The products are all easily soluble in cold water and are effective in small quantities. Proctor Chemical Co., Salisbury, N. C.

Circle D-11 on Reader-Service Card

Union Dye

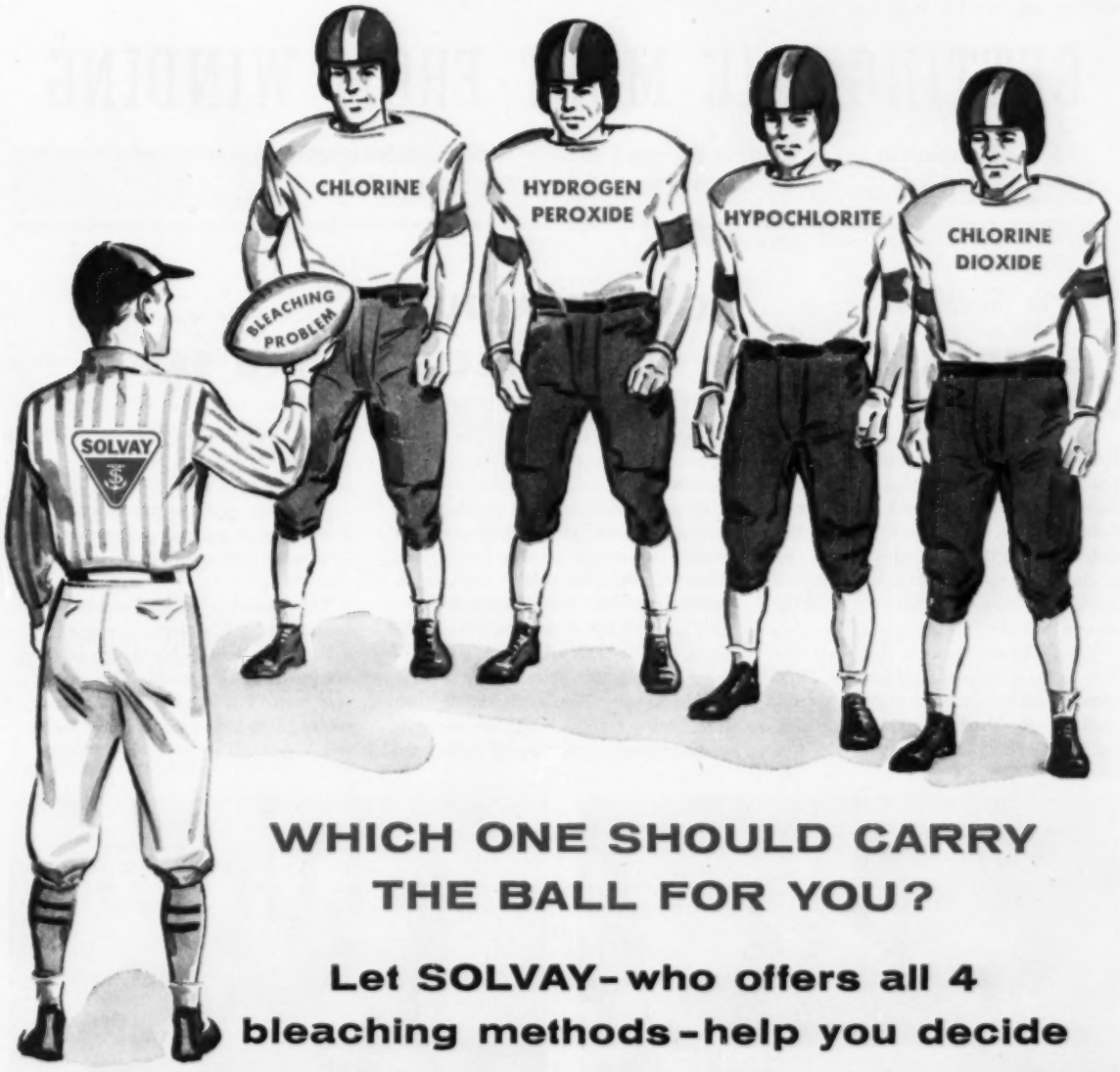
Vialon Fast Violet 2R . . . produces a reddish-violet shade on nylon, wool, or unions of these fibers. Fastness properties are rated excellent. Nova Chemical Corp., 153 Waverly Place, New York 14, N. Y.

Circle D-12 on Reader-Service Card

Diazo Dye

Diazamine Fast Scarlet 3GWL Pat. . . . provides bright, fast-to-light shades that are dischargeable. Can be used with cotton-acetate mixtures to reserve the acetate and works well with resin finishes. Good fastness to water, washing, and perspiration results when the dye is developed with beta naphthol. Sandoz Chemical Works, 61-63 Van Dam St., New York 13, N. Y.

Circle D-13 on Reader-Service Card



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Let SOLVAY–who offers all 4 bleaching methods–help you decide

Now with the addition of Hydrogen Peroxide to its line, SOLVAY is in a position to offer you unbiased recommendations for the method or methods of bleaching which would be best suited to your operation.

But objective counsel is only one reason for seeing SOLVAY. Besides supplying products that have set the industry's quality standards for over 75 years, SOLVAY helps you get the most out of these products . . . through authoritative literature, practical application aid by field technicians and the research facilities of the world's largest alkali laboratories. All are at your service—at no extra cost—through SOLVAY Technical Service.

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Potassium Carbonate • Sodium Nitrite • Caustic Potash
Snowflake® Crystals • Sodium Bicarbonate • Caustic Soda
Ammonium Chloride • Methylene Chloride • Methyl Chloride
Ammonium Bicarbonate • Ortho-dichlorobenzene • Chloroform
Soda Ash • Monochlorobenzene • Carbon Tetrachloride • Para-dichlorobenzene
Chlorine • Cleaning Compounds • Hydrogen Peroxide

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BW-11 *In Western Hemisphere Countries Only

For more data, write this page number on Reader-Service card. →

THIS IS NO. 119 OF A SERIES ON

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

HOW TO ADJUST REDRAW THREAD GUIDE PRECISELY AND EASILY

Adjustment of the Redraw Thread Guide to meet variations in the bobbin position, traverse length, and warped flanges, is not uncommon in the mill today. Under the present system, the operator calls the fixer, who loosens the guide and re-positions it. Even then, it is not always possible to prevent build-up at one end of the bobbin.

This build-up results in decreased efficiency in subsequent operations. The consequent loss in production is attributed to rings or under-winds which cause a plucking action to take place as the yarn pulls off the bobbin. The plucking causes end breakage and reduces machine efficiency and production.

Universal analyzed this problem and designed a thread guide which makes it possible to attain precise settings so easily that even the operator can do it. Starting with the basic Model 200 Redraw guide, a nylon ratchet, held under spring tension, was added. Now the operator can adjust the guide by turning a little handle. Figures 1 and 2 illustrate this point, showing the extreme left-hand position on Figure 1, and the extreme right-hand position in Figure 2. The total distance between these two settings is approximately ⅛".

This not only means possible improvement in package appearance, but improved performance in subsequent operations.

The ratchet is made of molded nylon, assuring long life, without any need for lubrication. It is available for all Model 200 Redraws equipped with metal traverse bars. The ratchet can be attached to the guide with a minimum of installation time.

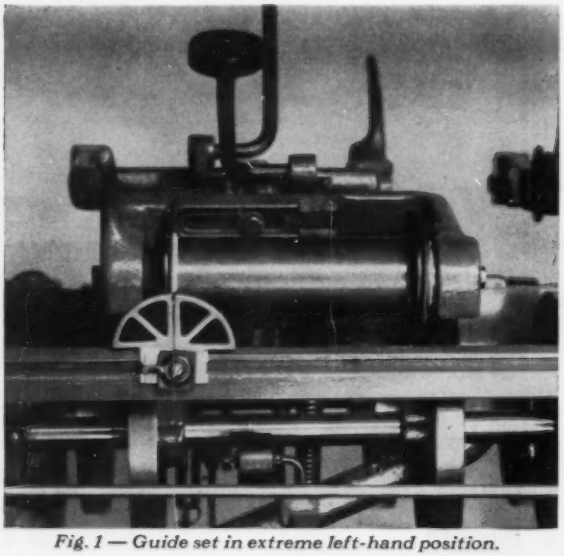

Fig. 1 — Guide set in extreme left-hand position.

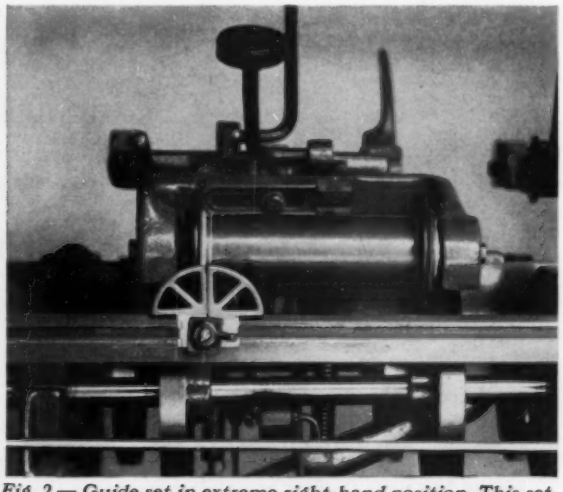

Fig. 2 — Guide set in extreme right-hand position. This setting makes the yarn traverse approximately ⅛" to the right. The operator can set the guide very quickly for any traverse position in between these two extremes.

November 1956 — 23.6.7

WINDING AND TWISTING MACHINERY FOR NATURAL AND SYNTHETIC YARNS

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QUESTIONS and ANSWERS

Do you need help on a technical problem? TEXTILE WORLD is at your service in helping solve problems in yarn manufacturing, weaving, knitting, dyeing, finishing, and other textile operations. A large staff of mill men, consultants, and other experts are available for authoritative answers. Send your problem to the Editor, Questions and Answers, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

No Official Standards For Cabled Yarns

Technical Editor:

Are there any standards or formulas in the number of turns per inch for twisting cable yarns such as 20/3/2? Are there any standards for successive twists such as Z/Z/S or S/Z/S? What is the length loss in cabled yarns? (9979)

There are no commercial standards or formulas that have been adopted by the industry for standards of turns per inch for twisting cable yarns. Each manufacturer, from his own experience, has made his own determinations for twisting cable yarns for each particular end use of the yarn. These twists depend on the size of the yarn desired and the required elasticity, strength, and elongation.

The only rule we know is used in mills running flax, where the original turns per inch in the single yarn is based on the square root of the lea multiplied by 2¾. This rule is used when yarns are to be plied into cable yarn; but no definite twist in this final ply is standard, since the twist used depends on the end use of the yarn.

There are two methods for plying yarns; the cable twist and the hawser twist. In the case of cable twist, the direction of twisting is alternated in each operation. The singles may be right-handed, the plies left-handed, and the cables right-handed (S-Z-S). This twist may be arranged as left, right, left (Z-S-Z) in an alternate method. The disarrangement of the twists in the singles and plies is considerable, but the direction of twist always alternates.

Hawser twist is the arrangement where the singles, plies, and cables are twisted left, left, right (Z-Z-S) or right, right, left (S-S-Z). The two primary yarns are twisted in the same direction, either right- or left-handed, and the final twist is reversed.

Length loss depends on the original turns per inch in the singles, the final turns per inch in the cable, the elongation and elasticity of the particular fiber used, and atmospheric conditions under which the twisting takes place. There is no set percentage of loss when yarns are cabled, but some yarns lose from 2 to 10%.

How To Causticize Twills

Technical Editor:

We have been asked to causticize a cotton four-leaf twill fabric prior to vat dyeing. How is this done? (9987)

Run the goods for four ends on a jig in a 4% cold caustic-soda solution, based on the bath volume. Then rinse thoroughly until neutral to litmus paper. Rinsing may be speeded up by adding a small amount of acetic acid after four ends in running hot water. Finish up with two ends in running cold water.

Check These Items For Biased Cloth

Technical Editor:

We make 56-in.-wide rayon linings for men's wear and have received a complaint that our filling is not straight and the fabric is difficult to work. How can the trouble be prevented? (9992)

The condition might occur in weaving or in subsequent operations. This checklist may help find the trouble:

Take-up roll of the loom not level

Cloth roll not wound at equal tension at each selvage

One selvage tighter than the other

Warp yarn not wound on the yarn beam with the same tension at each end

Yarn slipping on the beam

Different stretch imparted to segments of the yarn by the shedding motion of the loom or during slashing

Other operations that can pull the warp and filling out of line in the cloth are the shearing machines, rolls on inspecting machines, tenters, and various rolls over which the cloth is carried in dyeing and finishing.

Ends Down for 20s Should Not Exceed 40

Technical Editor:

Do you have any data on recommended drafts and ends down per thousand spindle hours to be expected in spinning 15s to 20s carded filling yarn from 1 1/16-in. stock? (9964)

The upper limit on draft of conventional-draft spinning frames is about 18. However, if preparation is good and quality requirements are not too high, the draft can go as high as 24.

Long-draft spinning with the regular Casablancas system can be operated at about the same conditions. Super-Draft spinning permits still higher drafts. High-quality yarn can be made with this system with drafts up to 30.

Higher drafts are sometimes used if the preparation is good and quality requirements are not high. A draft of 30 on any of the new systems is not advisable if you are spinning high-quality yarn.

A blanket statement about ends down is difficult to make. We hear many reports about mills running with 15 or 20 ends down per thousand spindle hours but don't see many of them. A mill with reasonably good cotton and preparatory equipment could spin 15s to 20s carded filling with about 30 ends down.

If the equipment is not in good condition or if the spindle is running at speeds that are too high, the ends down may run as high as 40. If the equipment is in excellent condition and speeds are conservative, the ends down may be as low as 20. Conditions should be checked if ends down exceed 40.

What is pH?

Technical Editor:

Can you give us a brief outline that will describe the pH system of measuring acidity or alkalinity? Would we need a lot of equipment to keep a reasonable check on our processing? (9967)

The symbol pH is used to define a system of measurement of the active H^+ or OH^- ions in a solution. The system is based on Arrenhius's theory of electrolytic dissociation, which assumes that acids, alkalis, or salts, when dissolved in water, break up into ions. An ion is an atom or group of atoms that carries electrical charges. Hydrogen (H^+) carries a positive charge. Hydroxyl ions (OH^-) carry a negative charge.

Many inorganic and some organic materials dissociate when dissolved in water, freeing H^+ and OH^- ions. If the H^+ ions are more numerous, the pH of the solution will be less than 7. If the OH^- ions predominate, the pH will be more than 7. If there is complete balance between these two groups of ions, the pH will be 7. Pure water (pH 7) is an example of this balance.

The thing to remember is that when the pH is less than 7, the solution is acid; when it is over 7, the solution is alkaline. Each whole degree of pH represents a change in intensity of acidity or alkalinity of 10 times the previous or following degree.

Remember that pH is a measure of intensity or activity. It doesn't tell you how much acidity or alkalinity is present; it tells you only how busy those ions happen to be at the time.

Several systems of checking pH have been evolved. These systems include titration with chemicals that change color as pH varies, estimation by noting the color change of dyes, and color comparators such as the Lovibond Comparator. Electrometric systems in which electrodes of various compositions are introduced into the liquid to be tested are recent developments. By balancing out the electrical characteristics of the instrument itself, very delicate pH measurements can be obtained.

Jute Fiber Grade Largely Determines Hairiness

Technical Editor:

How can we reduce hairiness and static electricity in spinning jute yarns? (9948)

The hairiness of jute yarn can be partly controlled by processing methods, but it is basically due to the grade of fiber used.

After jute fiber has been removed from the bale and run through an opening machine, a softener machine or double-chain hackling machine is used. Both machines subject the fiber to oil emulsions for softening effects.

Mixtures of water and 20 to 30% fish oil with disinfectants are heated to 120° F. at the time of application to the fiber. The amount of oil emulsion added to the fiber depends on the end use of the yarn, but batching for 36 hrs. as done on the double-chain hackling machine is considered best for good quality yarns with minimum hairiness.

High-speed spinning could cause some hairiness, but it is doubtful if the hairiness is increased because of the high speed of the spindle. Static electricity can increase hairiness.

Glass-Fiber Fabrics Are Used for Acid Filters

Technical Editor:

What are glass-fiber filter fabrics used for, and how are they made? (9804)

Glass-fiber filter fabrics are used mainly for hydraulic filtration, and the yarns may be filament or spun yarns. They are used where strong acid or weak alkaline liquids under high pressure are filtered.

They are woven in medium or close weaves of .0015-in. thickness to .015-in. thickness when filament yarns are used and .012- to .023-in. thickness when staple-fiber cloths are desired.

They have great tensile strength and will not shrink, stretch, or corrode; and they are chemically stable. They are completely resistant to acids with the exception of hot phosphoric and hydroflouric acid in concentrated forms. The high-temperature resistance of glass is important as it will withstand filtering of high-temperature liquids.

How To Calculate Composition of Yarns

Technical Editor:

How can we determine the proportion of each yarn in a combination yarn such as two ends of 150 1/0-1. OZ. glass fiber and one end of 250-den. Dacron? (9990)

To determine the proportion of each yarn in a combination yarn, reduce the number of each yarn to a common denominator. The simplest method is to reduce all yarns to the denier system.

For example:

1 spool 150-1/0-1. OZ. glass fiber—297 den.
1 spool 150-1/0-1. OZ. glass fiber—297 den.
1 spool 250-den. Dacron—250 den.

Total denier—844

584 ÷ 844 = 70% glass fiber
250 ÷ 844 = 30% Dacron

These calculations are theoretical, and in practice they may vary slightly. The percentages are based on the assumption that the size of each yarn is always exactly the number specified, and the yarn contains a uniform percentage of moisture.

To find the cost per pound of any combination yarn, multiply the price of each individual yarn in the combination by the percentage that each individual yarn represents in the total combination, and add these figures to the throwing charge.

Humanics — **A TW Brief**

What Is Human Relations?

Human relations is nothing more than "getting along with people." To get the most out of life, you must practice human relations in all your dealings with your family, neighbors, friends, and others with whom you come in contact.

If there is a human-relations problem between you and your grocer, he may retaliate by giving poor service or inferior merchandise. Of course, you can always go to another store; but it might be inconvenient, and eventually you will make the rounds of all the stores.

On the job, a supervisor can fire an employee when human relations are strained to the breaking point. Or, if the trouble lies between the supervisor and his superior, he can quit. But he would soon run out of employees or jobs.

So the best thing to do, on the job or off the job, is simply to try to get along with people, with due regard for the circumstances. It will not only make life easier for you but will also lighten the load of the many people you must deal with on the job, at home, and in your social life.

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jig or continuous dyeing

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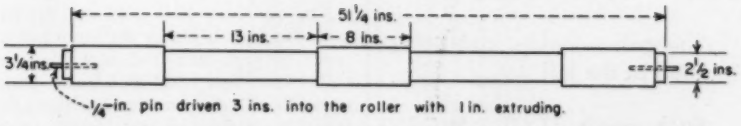
KINKS and SHORT-CUTS



Wooden Roll Solves Comber-Packer Problem

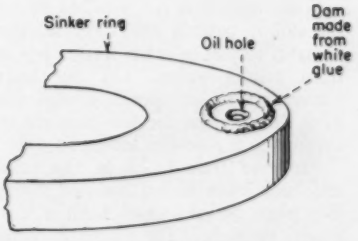
If you are using Naismith combers with the old metal packer on the back for packing noils, I am sure you would appreciate the benefits of changing to a wooden roll, as we have. This change is simple and easy to make. In fact, the comber does not have to be stopped longer than a couple of minutes. Here's how to do it:

Make the wooden roll 51¼ ins. long and 3¼ ins. in diameter over the noil; the rest of the roll should be 2½ ins. in diameter. Sand the roll and put two coats of shellac on it.

Put a ¼-in. pin 4 ins. long in the center of each end of the roll and leave 1 in. of the pin sticking out. Knurled pins driven into the wood work fine. Two of these rolls are required per comber.

Remove the old packer, lay back all the carrier-roll links not needed for the wooden roll, and put the roll on the frame.

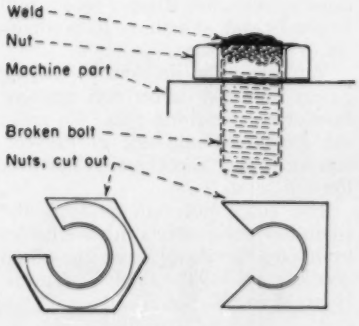
The new roll will put noils in the box instead of on the floor, quality will improve, the waste chute will remain open, and operators no longer will suffer from pinched fingers. (K-3209) *C. E. Robinson, American & Efird Mills, Albemarle, N. C.*



Keep Oil off White Goods

On many textile machines, such as knitting machines and looms, there are a number of oiling points above the fabric level. Oil from these points drips on the fabric and soils the goods.

A dam around each such oil hole keeps oil within its bounds. Make the dam around the oil hole with Rolite white glue, which can be obtained from hardware stores and applied directly from the tube. The dam also clearly marks the position of each oil hole. (K-3012) *H. J. Haas, Martinsburg, W. Va.*



Remove Broken Stud Bolt With Spot-Welded Nut

Sometimes a stud bolt or capscrew breaks off in a machine part and cannot be removed by ordinary methods. A nut welded to the broken piece makes the bolt or screw easy to remove with a wrench.

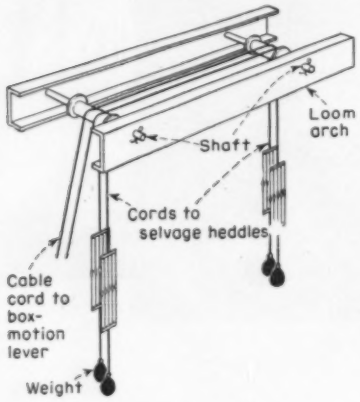
If the projecting end of the bolt is small or hard to reach, one side of the nut can be sawed out for easier welding. (K-3033) *The Stabilizer.*

Use Fleece To Clean Knitting Machines

To wipe dirt, lint, and oil from knitting machines, use a piece of brushed-fleece cloth with the fleece turned to the outside. The fleece soaks up oil, gives the machine parts a gloss, and protects your hands.

This fabric can also be used wet for removing many stains. Soak the fabric in water for several minutes, but make sure that you wipe the moisture from the machine with a dry piece of waste. (K-3190)

September Prizewinning Kink



Special Selvage Motion Protects Tender Yarns

Sometimes it is not feasible to peg the dobby pattern chain for selvages on satin weaves or other weaves woven from tender yarns. On our satin weaves, we rig up special selvage motions driven from the box motions on Crompton & Knowles looms.

First we bore holes in the front and back loom arches for two shafts. We place an old spool from a yarn winder on each of the shafts. A cotter pin is placed in each end of the shafts to hold the shafts in place.

The heddles for our selvages are placed on regular selvage heddles. Cable cords are run over the spools in the loom arches to the selvage heddles. The other ends of the cords are fastened to the box-motion levers. The bottoms of the heddles are held down with drawing-frame-clearer weights.

As the box-motion lever moves back and forth, the selvage heddles are moved up and down. The weights control the tension on the heddles to hold them taut, but little strain is put on the tender selvage ends. Consequently there are few broken selvage ends. (K-2913) *Charles S. Bicksler, Lancaster, Pa.*

The best Kink published in the September issue of TEXTILE WORLD, according to our reader-judges, was:

"Special Selvage Motion Protects Tender Yarns".

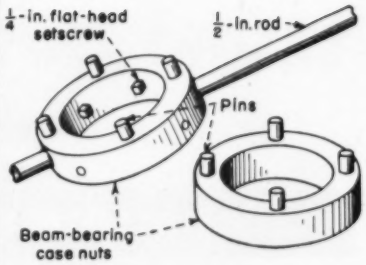
By Charles S. Bicksler Lancaster, Pa.

The winner is being sent a check for $25 with the compliments of TEXTILE WORLD.

The prizewinning Kink is reprinted at the left.

Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 300 mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answers in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.

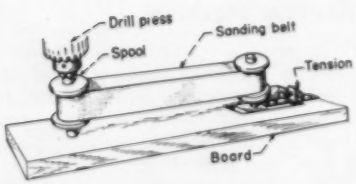


Make Special Wrench For Beam-Bearing Cases

The disassembly and reassembly of beam-bearing cases used on Barber-Colman high-speed warpers is difficult without special tools. A wrench for this purpose can be made from two old beam-bearing-case nuts (HWA 47).

On one nut, four pins are driven into the four holes in the case and a piece of ½-in. steel rod is welded to each side for handles. Four ¼-in. square-head setscrews are run through the sides of the nut and locked; then the nuts are welded in. The heads of these nuts fit into the slots of the beam-bearing-case-sleeve nut, and this part of the wrench is used to remove the nuts.

The second case nut is fitted with four pins in the same manner and locked in a vise to form a seat for the bearing case. After the case has been removed from the sleeve, it is seated on top of the four pins of the nut in the vise. The wrench is placed on top of the case with the four pins engaged in the top nut, and the nut is easily screwed out. (K-3073)



Drill Press Drives Handy Belt Sander

A belt sander that is handy for numerous sanding and cleaning jobs can be made easily from scrap materials. Two spindles are inserted in holes in a heavy board, spools are placed on them, and a piece of band sandpaper is threaded on the spools.

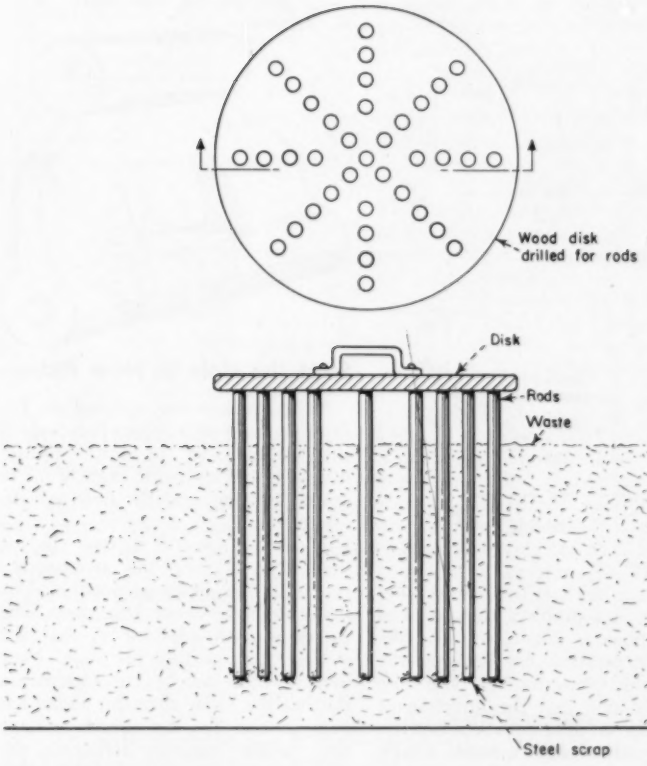
A shaft is extended from the arbor of the drill press into one of the spools for motive power. The spindle for the other spool has an adjustable base to regulate the tension of the sandpaper belt. (K-3014) *H. J. Haas, Martinsburg, W. Va.*

This Guard Protects Top Comb and Overhauler

Careless handling of top combs during comber overhauling used to cause considerable damage in our mill to combs and sometimes to overhaulers.

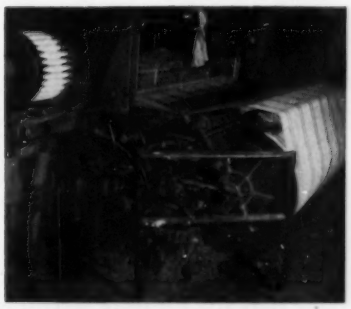
We solved the problem by making guards from old rubber cots removed from worn detaching rolls. To make the guard, slit one side of the cot, remove it, and slip the split cot over the top comb.

The guard not only protects the comb but also protects the overhauler from possible injury from the sharp needles. (K-3194) *Fred G. Taylor Hope Mills, N. C.*



Remove Steel Scrap With Magnetized Rods

A quick way to remove steel scrap from a box of waste or lint is to use magnetized rods fastened to a wood holder, as shown in the sketch. Insert the rods into the waste container, and the steel fragments will be drawn out when the rods are removed. (K-3124)



Protect Loom Ends With Pipe Guard Rails

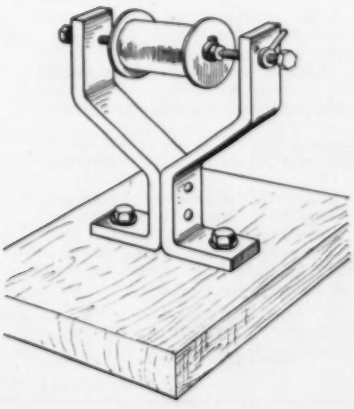
Corner looms in heavy traffic areas are often damaged by moving trucks or beam-handling equipment. The trucks strike the let-off, beam flange, or the warp yarn and damage them.

To prevent this damage, we have put guard rails at all our looms in heavy traffic areas. The guards are 2-in. pipe welded together, as shown in the picture.

The two legs of the guard are threaded at the bottom, and flanges are screwed on them. The flanges are fastened to the hardwood floor with wood screws.

The third section of the guard is supported by the loom. A flat plate is welded to the end of the pipe. This plate has a hole bored in it to bolt it to the loom.

The guard is strong enough to prevent damage and is quickly removed when a loomfixer has to work on the end of the loom. (K-3042) *Avondale Mills, Alexander City, Ala.*



Wind Reels and Spools On This Handy Jig

It is sometimes necessary to wind or unwind wire, thread, or other material from reels, spools, or coils. Without proper equipment, a neat job is impossible and there is the possibility of snarling or kinking the material.

An easily made jig, shown in the sketch, can be used for reeling and winding. A pivot-type stand is made of strap iron mounted on a wood-block base. Arbors and spacing collars can be fashioned from wood to adapt the jig to different sizes of spools and reels. (K-3130) *C. H. Willey, Penacook, N. H.*

How To Prevent Holes In Fine Knitted Fabrics

We had difficulty running cotton yarn on fine-cut rib-knitting machines. Holes would frequently appear in the cloth, and drops were common.

We stopped practically all these faults in a very simple manner. Just before the yarn is put on the machine, the cones are inverted and the top of each cone is dipped in a bucket of clear, stainless oil. The oil does not interfere with knitting and scours out easily. (K-3176)

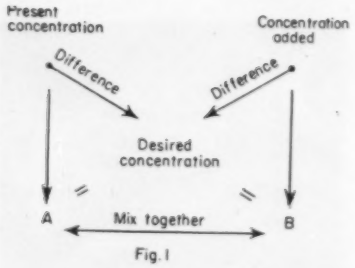


Fig. 1

Easy Way To Calculate Mixtures

Many times it is necessary for dyehouse personnel to prepare solutions of chemicals in strengths that vary from standard.

Fig. 1 shows a simple way to dilute chemical solutions to any desired percentage. The answers reached at *A* and *B* are based on volume, not weight, because varying specific gravities interfere with accuracy on a weight basis.

In Fig. 2, the desired concentration is subtracted from the present concentration, and the remainder is set down diagonally opposite the present-concentration figure. In this case, the concentration-added figure is zero because only water is involved; the subtraction is from the desired-concentration figure. The remainder is set down diagonally opposite the concentration-added figure.

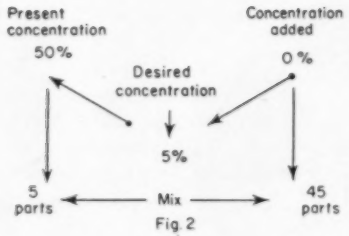


Fig. 2

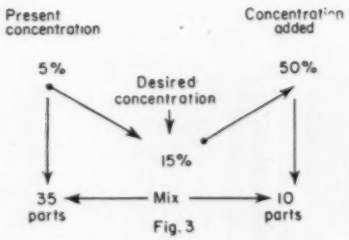
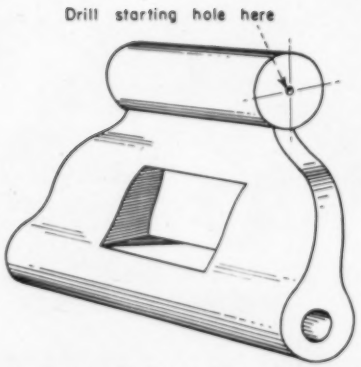


Fig. 3

In Fig. 3, a problem that involves two solutions is illustrated. The desired concentration lies between the two available concentrations. The same method is used, but the direction of subtraction is different because you can't subtract a larger number from a smaller one. (K-3181) *David Slouin, Cranston, R. I.*



Start the Hole in New Pickers

When pickers are replaced on the drop-box side of a loom, it is usually the custom to let the shuttle form a hole. The pickers shift slightly up or down, however, and the hole may be off center.

It's better to drill a small starting hole with a $\frac{7}{16}$-in. drill as near the center of the picker as possible. The hole should be about $\frac{1}{2}$ in. deep. The picker is then adjusted so that the shuttle spur centers the hole. Very little trouble will be encountered in starting the loom after the picker has been placed, for the shuttle will go into proper position following the starting hole. (K-3052) *H.E.W., Berwick, Pa.*

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What Is a Kink?

Any idea that will

- Cut costs
- Improve quality
- Reduce work
- Increase production
- Make work easier

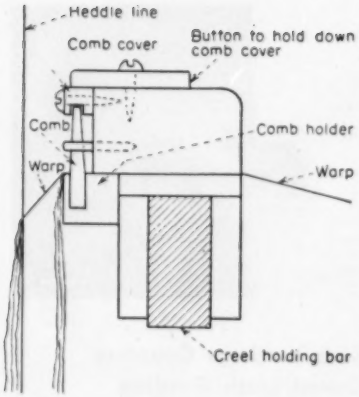
The idea may be one for improving machines, some attachment for a machine, a short-cut way of doing something, a labor-saving device—any idea at all that helps a mill man run his job better or easier.

Send in your Kink now. There is always a contest going on.

RULES OF CONTEST

1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to Kinks published that month, yearly to those published in calendar year 1956.
3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 300 will be asked to select preferred Kinks in each issue. Their votes will select the best Kinks, and their decision will be final. In cases of ties, duplicate prizes will be awarded.

Send Kinks to:
KINKS CONTEST, TEXTILE WORLD
201 E. Coffee St., Greenville, S. C.



Drawing Slide Saves Sectional-Warping Time

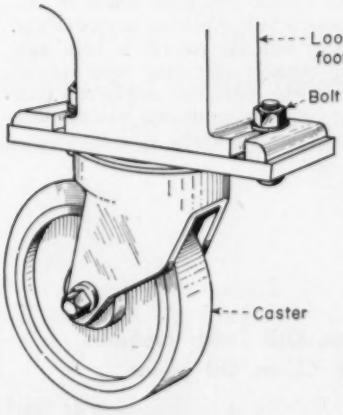
I made a warp-drawing slide to move on the creel holding bar to help do the job of drawing in sectional warps faster.

The slide is made of soft wood, and it moves freely on the creel holding bar in place of the sliding creel, as described in TEXTILE WORLD, Aug., '55, p. 141. A comb with 12 teeth per inch about 4 ins. long is held in a slot of the comb holder. Pins will prevent lateral motion of the comb.

The length of the slide is determined by the length of the comb. The comb cover is pivoted at one end of the slide and rotated half a turn for entering the warp ends as they lie on the adhesive tape.

After the comb cover is buttoned down, the ends cannot become misplaced in the comb as they are drawn through the heddles with a small wire hook.

The warp ends are held separately about ½ in. behind the heddles in the back harness. The harnesses are all up, and the ends do not interfere with the selection of the heddles for the pattern desired. We find that this method is faster than having the ends handed in by a second operator. (K-2893) *Walter A. Simond, Essex Junction, Vt.*



We Use Casters To Move Looms in the Mill

We often have to move looms from one location to another in the mill or to move looms in or out of the plant.

To do the job, we bolt a heavy-duty 5-in. caster to each loom front. The loom can be jacked up and the casters installed in 10 mins., and four men can move the loom anywhere needed by just pushing it. Swivel casters make it possible to get the loom in or out of close places. (K-2940) *Leslie Hayter, Huntington, Que.*

We Clean Shuttles With Steel-Wool Pads

On some weaves, the sizing from the warp yarn leaves a sticky gum on the shuttle. As this substance accumulates along the top and bottom of the shuttle, saw-like rough edges form and often bruise or cut the warp ends. The accumulation of gum impedes the progress of the shuttle and often causes the loom to slam off.

Weavers usually flag the loom or call the fixer to get the shuttle cleaned, but sometimes they lose a lot of production when the loomfixer is busy elsewhere.

We have found the best solution is to give each weaver a pad of fine steel wool, such as housewives use for scouring cooking utensils. The steel wool will quickly remove all the gum and can be used over and over for a long time. (K-2992) *H. E. W., Berwick, Pa.*

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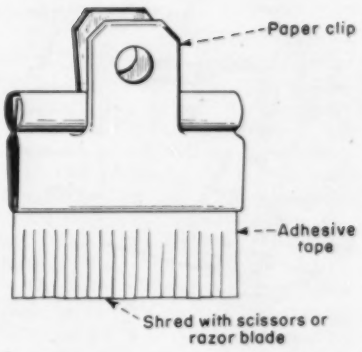
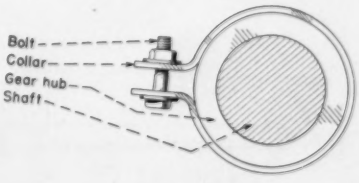
Send in your Kink now.



A Simple Way To Clean Hosiery Machines

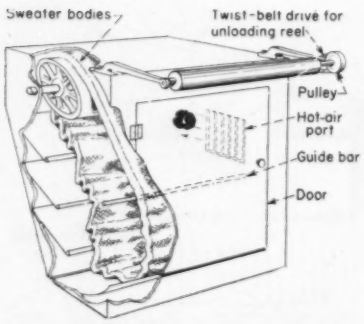
Lint and dirt soon collect on the top of circular hosiery machines, especially when carded yarns are run. This trash can be removed easily with an air gun, but the method also blows dirt into the needles and the fabric.

Here's how to make a simple brush that will remove most of the dirt and at the same time keep it out of the needles. Use a paper clip to hold a strip of adhesive tape. Shred the adhesive with a pair of scissors or a razor blade to simulate bristles. You now have a brush that can be worked around the cylinders and sinker rings, and the dirt will stick to it. (K-3013) *H. J. Haas, Martinsburg, W. Va.*



Gears Are Strengthened With Clamp-on Collar

With a heavy weave on light looms, we were having trouble with camshaft gears splitting at the hub. A collar made of flat iron installed on each of the hubs eliminated the trouble entirely. The collars are made of flat stock 1 in. wide and ¼ in. thick; the length is the circumference of the hub plus about 4 ins. for the flange. (K-3148) *Chas. S. Bicksler, Lancaster, Pa.*



How To Build an 80-yd. Dryer for Sweater Fabric

A dryer that will handle sweater lengths up to 80 yds. can be made by the mill's mechanical staff.

Advantage of the machine is that you get a tumble-drying effect without all the tangles and twists that develop in the regular cylinder-type machines.

The enclosure is made of plywood, braced to carry the oval reel, and steps are made of any smooth material that is waterproof. The reel is built similar to the reels used in dye-becks.

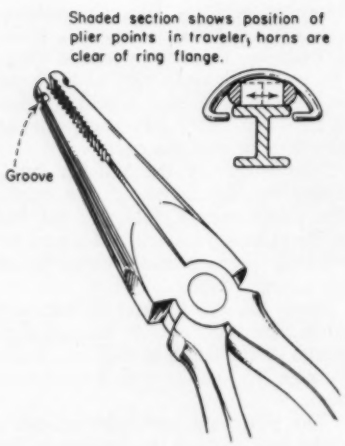
Drying is done with hot air introduced at the side of the machine and directed toward the back. Ducts should be arranged so that cold air can be blown in after drying to cool the goods.

An unloading reel, driven from the oval reel inside the housing, is used to pull the dried sweater lengths out of the dryer into a truck. (K-3182) *Francis J. Lynn, Philadelphia, Pa.*

Store Small Parts In Egg-Carton Bins

To keep small parts such as bolts, screws, and washers separate and handy, we use 12-bin egg cartons. Each carton is given several coats of shellac to make it stronger.

For more-permanent bins, we use muffin pans with 12 separate bins. The cartons or pans, filled with small parts, can be easily carried to the job and they take up very little space in the tool box when not in use. (K-3168).



Use Pliers To Remove Travelers From Rings

Putting new travelers on spinning rings is not much trouble, but removing old travelers can be quite a job.

In removing worn-out travelers, it is difficult to break or snap them off without scattering them over the floor, to be trodden later into the wood. Tapping travelers off rings with a small hammer should not be permitted because the practice can cause ring damage and disturb ring settings.

An easy way to remove old travelers is to use a pair of pointed-nose pliers with a shallow notch or groove ground about $\frac{1}{8}$ in. from the points of the nose. The nose is inserted between the bow of the traveler and the top of the ring flange. The jaws are opened until the groove makes contact with the traveler.

The pliers are then opened still wider, and the traveler is spread so that the horns clear the ring flange. Next step is to remove the traveler and drop it in any handy container by closing the jaws of the pliers.

Mills compelled to change yarn numbers and travelers after short runs often find it economical to save the slightly used travelers for further use. (K-3201) *E. H. Helliwell, Newburyport, Mass.*

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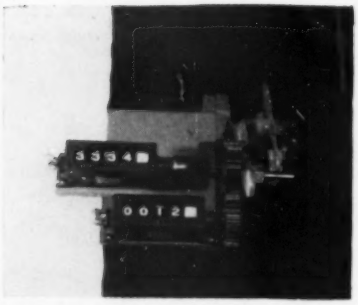


Two Yardage Counters Speed Cloth Grading

We keep up with the daily production of each cloth-room inspector and grader at our mill by using two yardage counters. The first counter records the yards of cloth in each roll of cloth and is turned back after each roll of cloth is inspected or graded; the second counter records the total yards of cloth graded each day.

The records of the daily clocks are used by our quality-control department to check the total yards of cloth graded in the cloth room each day. The records also show where an employee is falling behind in production. Then, with the records to help him, our overseer can take steps to increase the individual employee's daily output. As a result, our production is increased. (K-3065)

Use Old Latch Needles To Clean Oil Holes

Oil holes in knitting-machine bearings often get clogged with lint and oil. The result is worn and burned-out bearings.

To clean these stopped holes, break the latch off an old needle and insert the hook in the stopped hole.

The hole can usually be cleaned out with the hook; but if you can't enter the hook, break it off and use the point of the needle.

You will also find an old needle useful in cleaning yarn that gets wound around shafts. Break off the latch, put the hook under the yarn, and pull. If the needle is difficult to hold with the fingers, grasp the butt between plier jaws. (K-3193)

Standard setting
Combs enter lap-combing cycle
Nippers remain closed in combing position
Nipper frame is in combing position
Top comb remains at "in" position
Detaching roll starts return
Top detaching roll is in
Nippers start opening
Nipper frame starts forward
Top comb starts forward
Detaching rolls start forward
Top detaching roll starts forward
Start roll feed
Nippers remain open
Nippers start closing
Nipper frame starts to return
Top comb starts to return
Detaching rolls remain in forward
Top detaching roll starts to return
Feeding cycle from top-roll position

Timing Chart Aids in Training Comber Tenders

A handy chart to demonstrate the proper timing of the principal operating parts of a comber can be made from a heavy piece of cardboard, as illustrated. The cardboard should be shellacked to preserve it after the timings are recorded.

The beginning and ending point of each part of the comber is timed and written on the chart in proper sequence. The figures shown here are for one make of modern comber; the chart can be adapted to any comber.

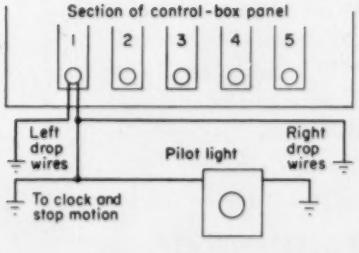
In this instance, the forward row of needles is set with a standard gauge to the boss of the back detaching roll, with the index set at 11½ on the pointer.

The outer circle of the chart shows that the feeding cycle of the comber should start with the index reading at 1½ and end at 5¾. The next circle shows that the nippers are open to receive the lap. The third circle indicates that the nipper frame is in correct position. The fourth, fifth, and sixth circles show respectively the correct timing and operations of the top comb, detaching rolls, and top-roll motion.

To use the chart, follow through each consecutive index number to each function. The position of each part is shown in proper relation to the basic timing of the needle segment as it approaches the combing position.

This chart has proved itself to be useful in actual mill practice and in instruction classes. The information could be put on a square chart, but I find that the round chart is more effective as a training aid. (K-3128)

E. H. Helliwell, Newburyport, Mass.



Pilot Light Shows When Stop Motion Works

On the Barber-Colman high-speed warper, the stop motion and clock are fed current from the No. 1 switch in the control box. Occasionally, this circuit fails because of lint on the contacts.

When the circuit is broken, the warper runs with the stop motion and clock dead, but the warper tender does not know of the failure until an end is lost or the clock overruns. In case of limit-switch failure, the warper runs with tension on the ends; and if the warper tender fails to notice the situation, there can be a serious breakout.

A pilot lamp can be purchased at any radio shop for about 75¢ and wired to give a visual indication that the stop-motion circuit is energized. The lamp uses a small 3- to 7-w. 110-v. bulb. It is important that the wattage be kept as low as possible to prevent interference with the operation of the stop motion.

The light goes on when the No. 1 control switch goes in, and it goes out when the warper stops. The pilot lamp, connected as shown in the sketch, is mounted on the front of the creel or on the wall. (K-3071)

Split Rubber Hose To Make Saw-Blade Cover

The teeth of a hacksaw blade will often become damaged or soiled when the saw is placed with other tools. An effective guard for the blade can be made by splitting one side of a rubber hose of the correct length and slipping it over the blade.

The guard not only prevents damage to the blade but also keeps the blade from damaging other tools or hurting the operator. (K-3154)

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Homogenizer—For print pastes, sizing compounds, handles up to 100 gals. per hr. of liquids at 20,000 Cps. at 20° C. Buschman Products Inc. (F-1)

Weighing feeders—For cards, garnetts, nonwoven fabrics. Tandem unit automatically weighs and delivers fiber. Standard widths from 40 to 84 ins. W. D. Dodenhoff Co., Inc. (F-2)

Edge guide—Electric-eye principle operates the unit, which can be used to guide textiles, paper, metals through machines. Intercontinental Dynamics Corp. (F-3)

Tester—For tensile strength, compression, hysteresis. Capacity 0 to 2,000 lbs.; accuracy ±0.25% through an electric weighing system. Scott Testers, Inc. (F-4)

Viscometer—Shearing-disk type redesigned for easier operation and maintenance. Records compatible with those of previous models. Scott Testers, Inc. (F-5)

Cop winder—Automatic doffing, produces wide variey of cops in all fibers with few change-overs. Spindle speeds to 3,000 rpm. F. A. Lazenby Co. (F-6)

Expanders—For correcting bow and skew in fabrics being processed. Bulletin 7931. Mount Hope Machinery Co. (F-7)

Binocular magnifier—For close inspection, examination where more-than-normal vision is necessary. Edroy Products Co. (F-8)

Static eliminator—For warpers, slashers, creels. High-voltage, protected units described in Bulletin 77. Portland Co. (F-9)

Textile testers—Variety of instruments for checking tensile strength, abrasion, wrinkle resistance, many others, described in Cat. CS-56. Custom Scientific Instruments, Inc. (F-10)

SUPPLIES & CHEMICALS

Floor sealer—For concrete floors. Prevents dusting, waterproofs, leaves surface suitable for waxing. S. C. Johnson & Son, Inc. (F-11)

Hydrogen peroxide—How to handle safely. Durable wall chart for drug rooms offered by Solvay Process Div., Allied Chemical & Dye Corp. (F-12)

Corrosionproof greases—For lubrication under extreme conditions of chemical attack. Bulletin BK-20 from Keystone Lubricating Co. (F-13)

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Resin monomers—For further manufacture into textile finishes, adhesives, described in booklet F-40033 from Carbon & Carbide Chemicals Corp. (F-14)

Industrial chemicals—Heavy chemicals most used in industry described in booklet covering inorganic and organic materials. Olin Mathieson Chemical Corp. (F-15)

Chlorine-handling equipment—Meters, valves, other fittings suitable for gaseous or dissolved chlorine. Cat. 50.118. Wallace & Tiernan, Inc. (F-16)

Dioxane—For analytical work, or a solvent, in cellulose and electronic fields. Fisher Scientific Co. (F-17)

Corrosion-resistant paints—For factories, equipment exposed to chemical fumes. Spray and brushing types described in bulletin 760. U. S. Stoneware Co. (F-18)

Fatty acid—For soap manufacture, lubricants, films, adhesives, other purposes. Characteristics described in booklet from Emery Industries, Inc. (F-19)

High-temperature grease—For sealed antifriction bearings running at temperatures to 250° F. Bulletin 47 describes typical applications, life expectancy. Sun Oil Co. (F-20)

MAINTENANCE & ENGINEERING

Pumps—Centrifugal and turbine types in a wide variety of capacities, with or without electric-motor drive. Aurora Pump Div., New York Air Brake Co. (F-21)

Recording thermometers—For temperatures between —125° F. and 1000° F. Various sensing elements, mounts, for many applications. Bulletin T840. Bristol Co. (F-22)

V-belt maintenance—Folders describe proper operating conditions, point out causes of failure in V-belts. Mailers V-1400-M38P, V-1400-M39P, and V-1400-M40P from Worthington Corp. (F-23)

Flow meters—Direct- and extended-reading models for fluids and gases, made in a variety of types and capacities to work at pressures up to 5,000 psi. Bulletin 130. Brooks Rotameter Co. (F-24)

Absorption refrigerators—For industrial air conditioning. Steam-energized equipment in 100- to 700-ton models. Folder 16C-9, Cat. 16C-8. Carrier Corp. (F-25)

Leakproof pumps—For water, low-viscosity fluids. Motor and pump combined into a compact unit. Bulletin 1060. Chempump Corp. (F-26)

Paint sprayers—Hot spray equipment, fittings, pumps, heaters, housings described in folders from DeVilbiss Co. (F-27)

Why you get more service from V-Belts with CONCAVE SIDES

Fig. 1

Fig. 1-A

Each sidewall of a Gates V-belt is concave (Fig. 1)—a precisely engineered curve that makes V-belts last far longer.

HERE'S WHY: on the bend around the sheave, the concave sides of a Gates V-belt fill out and become straight (Fig. 1-A). Thus the belt makes full contact with the sides of the sheave, grips the sheave *evenly*. This even contact distributes wear uniformly across the sides of the belt.

Uniform wear lengthens belt life; keeps costs down.

MAKE THIS SIMPLE TEST

Fig. 2

Fig. 2-A

Bend a straight-sided belt (Fig. 2). The sides bulge at the bend causing uneven contact in the pulley groove (Fig. 2-A). Naturally, wear is greater at points indicated by arrows. Result: shorter belt life, increased belt costs.

To cut down-time and V-belt replacement costs, specify belts that grip evenly and wear longer. Specify Gates Vulco Rope—the V-belt with concave sides. There is a Gates distributor nearby who will quickly supply the belts you need. The Gates Rubber Co., Denver, Colorado—*World's Largest Maker of V-Belts.*

There are Gates Engineering Offices and Distributor Stocks in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.

TPA 109

Gates

Gates VULCO ROPE Drives

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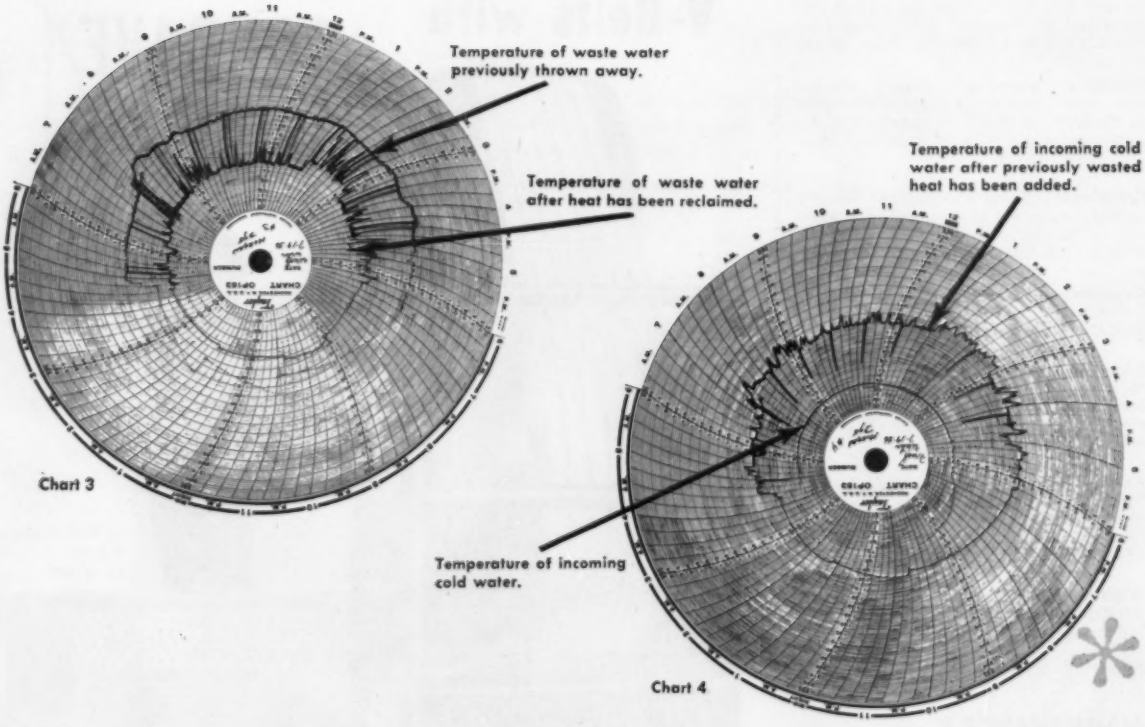

Temperature of waste water previously thrown away.
Temperature of waste water after heat has been reclaimed.
Temperature of incoming cold water after previously wasted heat has been added.
Temperature of incoming cold water.
Chart 3
Chart 4

How a **BREADY SYSTEM** of heat recovery solved the boiler overload problem of Morgan Dyeing and Bleaching Company and gave them **STEAM TO SPARE**

Reported boiler peak loads of 50,000 lbs. are down to 26,000 lbs., fuel consumption has been sharply reduced, dye kettle fill time of 25 to 35 minutes is now 5 to 6 minutes, production time has been substantially reduced, with a reserve supply of hot water.

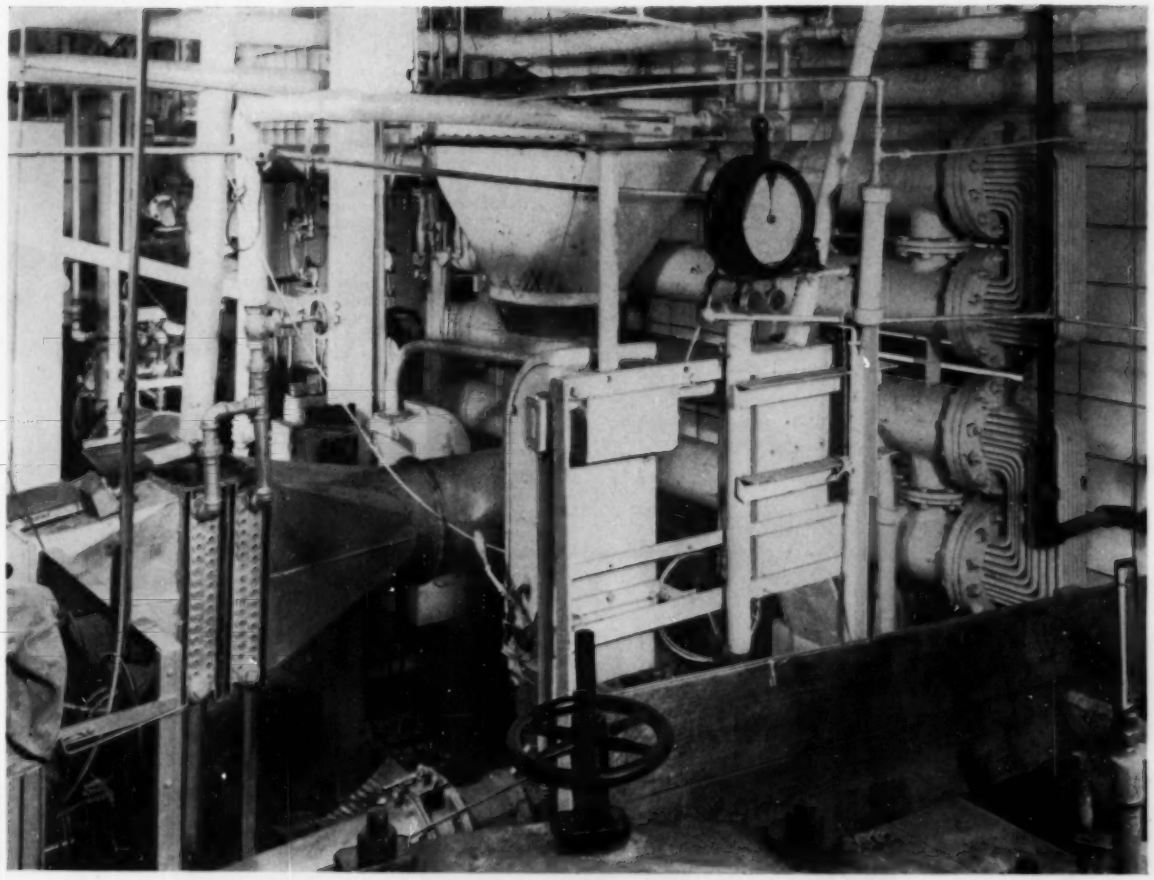
Boiler peak loads of the Morgan Dyeing and Bleaching Company, Rochelle, Illinois, last winter, were seriously in excess of boiler capacity. Purchase of hot water that a neighboring mill could furnish without seriously affecting their own production, only partially helped to relieve this situation. There was need for action, and Francis J. Connolly, purchasing agent, contacted Ludell to see what could be done.

Ludell engineers studied the problem. They surveyed the company's entire hot water heating system and determined the Bready System of Heat Recovery that would meet the plant's requirements.

The actual *Temperature Charts* from the Bready System of Heat Recovery, at Morgan, (see top of page) show the incoming 55°F water heated to an average temperature of 120°F, the desired hot water starting temperature, utilizing the waste heat from process effluent having an average temperature of 130-135°F. The momentary dips in the No. 4 chart show the system *automatically* cleaning itself. The only steam required for process water is that which is used for boil-off operation.

Today, Morgan Dyeing and Bleaching Company at Rochelle, Illinois, has all the steam needed for its present production. It now has boiler capacity to sell steam to the neighboring mill. Based on boiler load figures, a reduction of fuel costs of 41% is indicated. Equally important is the fact that the Bready System of Heat Recovery made the purchase of an additional boiler, fuel required for the boiler and building to house it, unnecessary.

Formerly, Morgan Dyeing and Bleaching Company took 25 to 35 minutes to fill and heat water in dye kettles before



The Bready System of Heat Recovery of the Morgan Dyeing and Bleaching Company was installed next to a wall of the plant and occupies only a few square feet of previously unused floor area. The continuous U-shaped tube bundles connecting the reclaimer shells, which identify the Bready System and are a means of achieving its guaranteed non-clogging feature, are at the right. Because other plant equipment has since been installed, the control panel and self-cleaning segments of the system are obscured from view.

actual processing operating could start. With the Bready System, the dye kettles are filled in about 5 minutes with water at desired temperature so that process can begin immediately. With a 20 minute reduction per fill multiplied by the number of fills and vats, a tremendous overall decrease in actual operating time was realized. The system will pay off in 25 months.

The boiler overload problem of Morgan Dyeing and Bleaching Company is not without its counterpart in many other wet processing plants. Boiler peak load reductions, production increases, fuel reductions and other economies can be effected in these plants with a Bready System of Heat Recovery as they were accomplished at Morgan.

Bready Systems of Heat Recovery are as important as an integral part of new plant hot water heating systems as they are in solving existing plant hot water heating problems. It will pay you to investigate all the benefits of a Bready System of Heat Recovery as it specifically applies to your present plant, or any new plant installation. Write, wire or phone Ludell today for detailed information, or a free plant survey.

Ludell *Manufacturing Company*

5200 WEST STATE STREET • MILWAUKEE 8, WISCONSIN

MANUFACTURERS OF BREADY SYSTEMS OF HEAT RECOVERY, BREADY SYSTEMS OF HOT WATER HEATING AND WHEELER SELF-UNLOADING WASHER

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"LIFE-LUBE"
BALL BEARING
FLANGE UNIT

Now . . . Woods' brings you a flange unit that *you never lubricate*, because lubricant is sealed-in . . . Yes, sealed-in by us at *our factory*. This means that no grease guns are used by you. No dirt can enter thru grease fittings, *because there are none* . . . and remember dirt and dust are major causes of bearing wear.

Your worry about over-lubricaton, which results in over-heated bearing, is eliminated . . . and also, there is no chance of under-lubrication. All these features add up to reduced maintenance, because no time is spent periodically lubricating Life-Lube.

These bearings are of modern design, able to withstand substantial thrust and radial load, at high speeds. Bearings are MRC standard 200 series with wide, deep groove inner race.

Life-Lube flange units are available in sizes from ½" to 2 15/16". Write for further information, or consult your Woods' Industrial Distributor.

T.B. Woods SONS CO. CHAMBERSBURG • PA.

Mechanical Power Transmission Manufacturers Since 1857

Cambridge, Mass., Newark, N. J., Dallas, Tex., Cleveland, O.

NEW LITERATURE Continued

Centrifugal refrigerators—For industrial installations. Hermetically sealed units to 350 tons capacity. Cat. 19C-100. Carrier Corp. **(F-28)**

Dial thermometers—In ranges from —80° F. to 500° F. Bimetal-coil actuation. Bulletin 149. Manning, Maxwell & Moore **(F-29)**

Packings—Teflon packings, gaskets, bellows, for mechanical and hydraulic applications. Bulletin T-110. Crane Packing Co. **(F-30)**

Roof ventilators—Fans and mountings in several types suitable for industrial ventilation. Some models are reversible. Bulletin A112-A. Hartzell Propellor Fan Co. **(F-31)**

Centrifugal pumps—Cradle-mounted pumps, gas or electric powered in a wide range of types and capacities. Form 7223-B. Ingersoll-Rand Co. **(F-32)**

Deaerators—For fitting exhaust steam condensate to boiler feed. Tray-type units of steel or cast iron. Pub. 4652. Cochrane Corp. **(F-33)**

Mercury switches—For a.c. or d.c. application; open or protected types. Capacities to 45 amps. at 250 v. Cat. 90A. Micro Switch Div., Minneapolis-Honeywell Regulator Co. **(F-34)**

Unit heaters—Vertical and horizontal heaters that operate on steam or hot water. Built-in fans. Bulletin 700A. American Air Filter Co., Inc. **(F-35)**

Motor starters—Magnetic electric motor starters in normal or explosion-proof cases, reversing or nonreversing circuits. Pub. EE-191. Cutler-Hammer, Inc. **(F-36)**

Crane and hoist fittings—Track, trolleys, electrical fittings for monorails, hoists, and cranes. Industrial Crane & Hoist Corp. **(F-37)**

Tubing data—Properties and fabrication of seamless and welded carbon-steel tubing discussed in technical data card 142A. Babcock & Wilcox Co., Tubular Products Div. **(F-38)**

Water-level indicators—Remote liquid-level indicators for boilers, tanks; acceptable to ASME Code Case 1175. Yarnall-Waring Co. **(F-39)**

Water filters—For boiler water, industrial use. Pressure type, capacities to 41,280 gals. per hr. Bulletin WC-107A. Grover Water Conditioning Co. **(F-40)**

GENERAL

Fork trucks—Gas-powered trucks in a series handling from 3 to 5½ tons, described in booklet from Towmotor Corp. **(F-41)**

Vision tests—Descriptive literature concerning occupational testing of vision; charts and instruments. Keystone View Co. **(F-42)**

FIRST with a COMPLETE LINE OF SAFETY SWITCHES to meet the NEW NEMA STANDARDS

• The table below shows Square D switches meeting new industry specifications. Notice how they clarify conflicting features which existed under old designations. Notice, too, that they establish a new, heavy-duty industrial switch, Type HD.

One important thing which remains unchanged is the **DESIGN LEADERSHIP** which has made **SQUARE D SAFETY SWITCHES** industry's overwhelming **FIRST** choice for more than fifty years. Compare them, feature for feature. They cost no more, why settle for less?

TYPE HD **TYPE ND** **TYPE LD**

DESCRIPTION	HEAVY DUTY New	NORMAL DUTY formerly Types H, S, or A	LIGHT DUTY formerly Types D or G
Rating-Ampere Voltage	30—600 250 or 600V AC, DC	30—1200 250 or 600V AC, DC	30—200 250V AC
Enclosure	NEMA 12 • Industrial Use (Gasketed) NEMA 4 & 5 • Water-tight & Dust-tight NEMA 7 • Explosion-resisting Class I—Group D NEMA 9 • Explosion-resisting	NEMA 1 • General Purpose NEMA 3R • Raintight	NEMA 1 • General Purpose NEMA 3R • Raintight
Horsepower Rating	NEC Fuse Ratings Dual-Element Fuse Ratings	NEC Fuse Rating Dual-Element Fuse Ratings	NEC Fuse Rating
Operating Mechanism	Quick-Make, Quick-Break Independent of Handle	Quick-Make, Quick-Break Independent of Handle	Positive Make, Positive Break Spring Assisted
Cover	Interlocked & Padlock Attachment	Interlocked & Padlock Attachment	Padlock Attachment
Plating—Current Parts	Extra-Heavy Silver	Silver	
Endurance	Maximum Endurance Far Exceeds UL Standards	Exceeds UL Standards	Meets UL Standards

NOW...EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE!

SQUARE D COMPANY

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GOOD WEAVI
REQUIRES
A GOOD BASE

Westsorb®

Westsorb adhesive-coated felt mounts absorb vibration, reduce noise, prolong machine life and eliminate floor damage. Mill owners, large and small, report savings of many times their original cost.

Adhesive is pre-applied to both sides. Peel off protective backing and Westsorb pad is ready to use (no cement necessary). Will not SLIP. NO BOLTS needed.

WESTSORB AVAILABLE AND IN STOCK AT:
Schmidt Manufacturing Co., New Bedford, Mass.
American Supply Co., Central Falls, R. I.
Odell Mill Supply Co., Greensboro, N. C.
Schmidt Mfg. Co. of S.C., Greenville, S.C.
Industrial Suppliers, Inc., LaGrange, Ga.

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WESTERN Felt WORKS

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Branch Offices — LOOK in the 'Yellow Pages' — in Principal Cities

MANUFACTURERS AND CUTTERS OF WOOL FELTS

NEW LITERATURE Continued

Laboratory services—Chemical, electrical, physical, photometric testing services outlined in bulletin from Electrical Testing Laboratories. (F-43)

Conveyors — Telescoping conveyors, mobile docks, curved elements described in Cat. 102. Wilkie Co. (F-44)

Pallet trucks—Electrically powered pallet trucks of compact design that handle up to 6,000 lbs. Bulletin 1002W. Automatic Transportation Co. (F-45)

Glass fiber—Textile yarns made of glass are compared in properties to cotton, rayon, and worsted fibers, along with other pertinent data, in Brochure TYN-1 from L.O.F. Glass Fibers Co. (F-46)

Tractor—Three-wheeled cart, powered by front-wheel-mounted gas engine carries 3,000 lbs. on flatbed body. Other body styles available. Linden Equipment Corp. (F-47)

Rubber-roll data—Deflection figures for rubber-covered rolls with pipe or cast bodies; effect of length of roll on deflection calculated in Report 10. Rodney Hunt Machine Co. (F-48)

Overhead materials handling—Data on design, installation, load factors, equipment in Booklet 2008-M from Cleveland Tramrail Div., Cleveland Crane & Engineering Co. (F-49)

Industrial trucks—Fork trucks, lift trucks, load-hauling models with gas and electric power described in Cat. 400 from Mercury Mfg. Co. (F-50)

THEORY AND TECHNIQUE OF COST ACCOUNTING IN THE HOSIERY INDUSTRY, by A. Weyman Patrick; Bureau of Business Research, School of Business Administration, University of Michigan, Ann Arbor, Mich.; 229 pages.

This subject of the author's thesis fills a big gap in the hosiery manufacturers' bookshelf. The economics and history of the hosiery industry constitute the first part of the book. The theory of standard costs is outlined in

Stainless is used extensively in the backwasher shown at left, and the scouring machine below, both manufactured by C. G. Sargent's Sons Corporation, Graniteville, Mass.

Here are some of the reasons why *stainless* is the best friend the textile mill ever had:

Resists Corrosion — Lasts Longer — Stainless just about never wears out—and its smooth, rust-free surface resists the corrosive bite of most chemicals used in textile manufacture. The backwasher and scouring train illustrated, for example, use stainless wherever liquors or chemicals come in touch with metal. Their manufacturer says, "The caustics and acids used, particularly in scouring heavy grease wools, are pretty strong stuff—few other metals would stand up under such exacting conditions."

Stainless Babies Fibres — Stainless presents a smooth, non-snagging surface to stock in transit through dryers —especially important with cashmere and other soft, tender fibers. And stainless is just as vital for parts such as teeth and rakes in openers and pickers. "For stainless helps do a more thorough preparatory job without damage to fibers—makes for better, easier, far more economical production of first quality yarns." And, of course, stainless is about the easiest material to keep clean that you can find.

There's a lot more to the story of how stainless means greater efficiency—greater profits in the textile mill. Much of it is contained in Crucible's 32-page booklet, "Making the Most of Stainless Steels in the Textile Industry." Write for your free copy today.

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

Canadian Distributor — Railway & Power Engineering Corp., Ltd.

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Booth

Originators of **STRIP-O-MATIC**

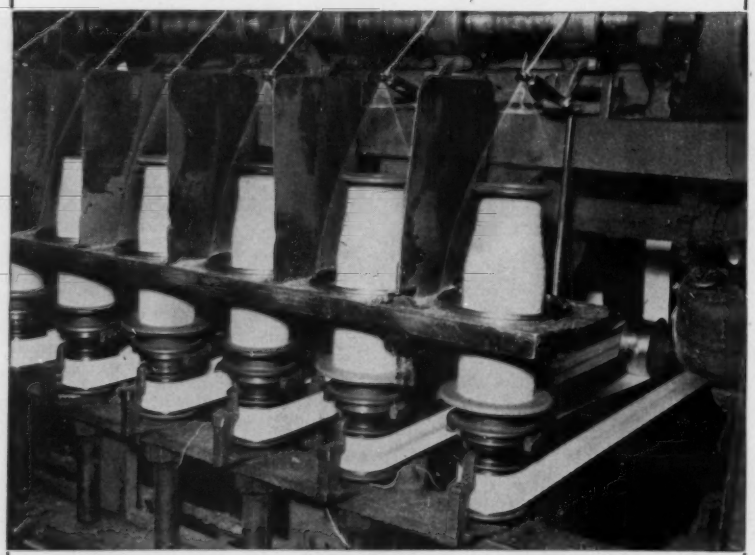
CARD CLOTHING

FIRST . . . . . **STRIP-O-MATIC**

SECOND . . . . . **SUPR-O-TAPE**

Now...

SUPR-O-BAND



SUPR-O-BAND, the new banding for spindle drives on spinning, twisting, and roving frames. Promises to be as successful as SUPR-O-TAPE that revolutionized woolen condensing "over night."

ALREADY PROVED by more than a year of rugged mill tests. Note these plus features:

- IMPROVED QUALITY
- LOWER POWER CONSUMPTION
- INCREASED PRODUCTION
- MORE ECONOMICAL

BECAUSE . . . SUPR-O-BANDS Give:

- OPTIMUM SPINDLE SPEED
- LONG LIFE
- UNIFORM TWIST
- MAXIMUM FRICTION—NO SLIPPAGE
- LOWEST COST

SUPR-O-BANDS are lint-free; use belt-hooks or stitching.

- STRIP-O-MATIC CARD CLOTHING
- CONVENTIONAL CARD CLOTHING
- SUPR-O-TAPE FOR CONDENSERS

BENJAMIN BOOTH COMPANY

ALLEGHENY & JANNEY STS., PHILA. 34, PA.

Booth

the second part, while the third part deals with techniques and methods for employing standard costs in a hosiery mill.

Problems encountered in setting standards are dealt with. The cost sheet and its uses are described. Many examples of cost sheets are given throughout the book.

CONDENSED CHEMICAL DICTIONARY, by Arthur and Elizabeth Rose; Rheinhold Publishing Corp., 430 Park Ave., New York 22, N. Y.; 1220 pages, $12.50.

The new edition contains over 30,000 entries of chemicals listed by scientific as well as trade-name terminology. Physical and chemical properties, uses, sources of supply, and shipping regulations are included in most listings.

The combination of scientific nomenclature with brand names is helpful in determining the basic chemistry behind many products and materials that are in every-day use.

BULLETIN OF THE NATIONAL ASSOCIATION OF WOOL MANUFACTURERS, Volume LXXXV; National Association of Wool Manufacturers, 386 Fourth Ave., New York 16, N. Y.

Association activities, industry statistics, and other matters relating to wool textiles during 1955 are given.

HOTEL TEXTILE PURCHASING GUIDE, by L. A. Bradley; published by American Hotel Association, 221 W. 57th St., New York, N. Y.; 111 pages, $7.50.

This book shows how hotels and institutions may be assured of getting value received for the several classes of textiles commonly purchased in this field.

The newly developed American Standard L24 Minimum Performance Requirements for Institutional Textiles provides specific terms that guide the purchaser in setting up specifications for his purchases.

Seven sections of the volume are devoted to the care and laundering of institutional textiles with detailed recommendations about methods and equipment.

Textile manufacturers should find the book valuable as a guide toward manufacturing goods that meet the defined standards.

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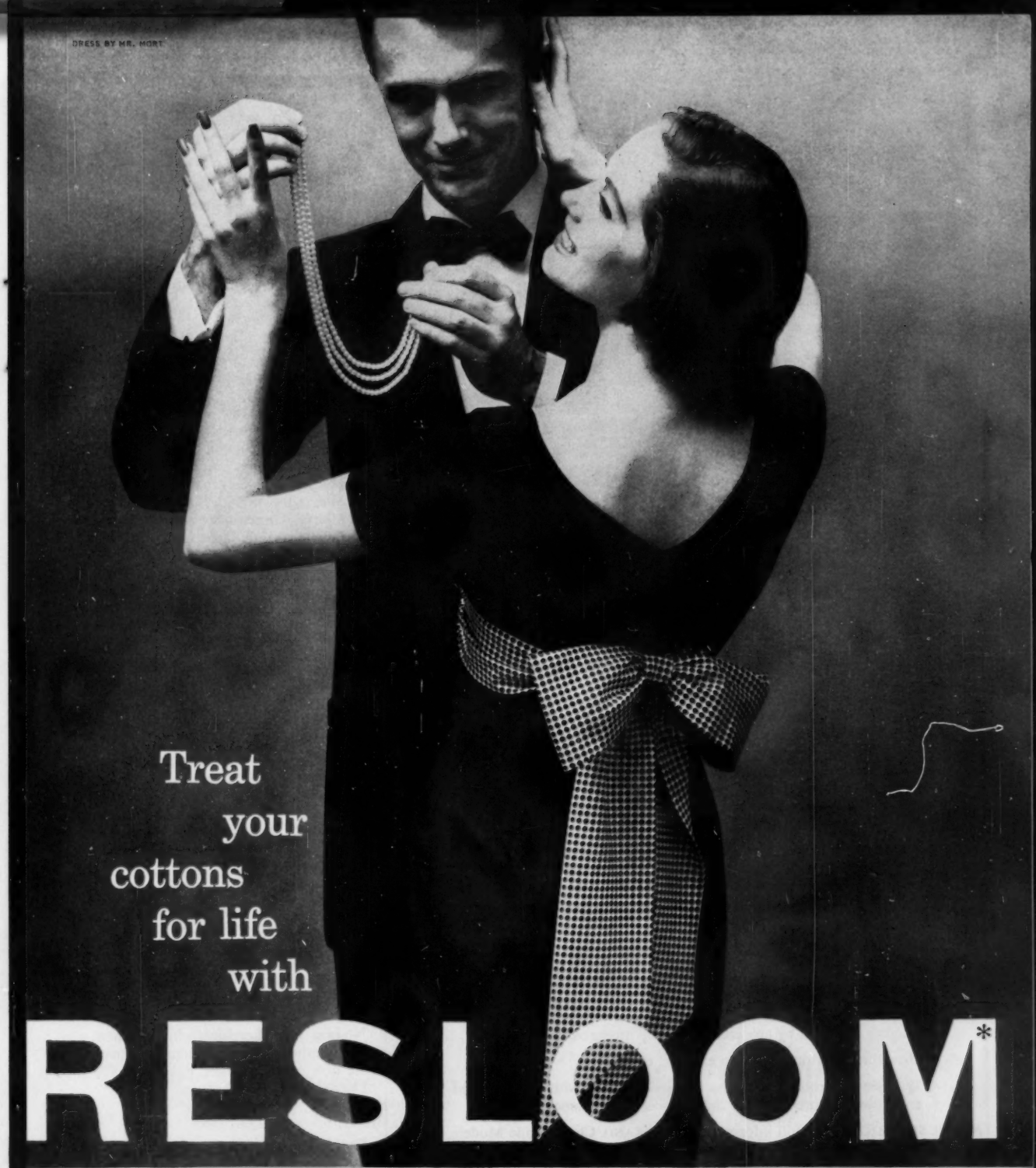


Monsanto cyclic urea resin, RESLOOM E-50, modifies fibers... does not wash out!

MONSANTO

*RESLOOM: REG. U. S. PAT. OFF.

Remarkable performance is reported for cottons treated with Monsanto cyclic urea resin. Resloom E-50 produces long lasting finishes that require little or no ironing.

After repeated laundering, the treated fabrics also demonstrate outstanding crush resistance and dimensional stability.

Unlike most other thermosetting resins, Resloom E-50 is designed to react exclusively with the fabric rather than with itself. Its active ingredients diffuse into the interior of cellulosic fibers and actually modify fiber characteristics.

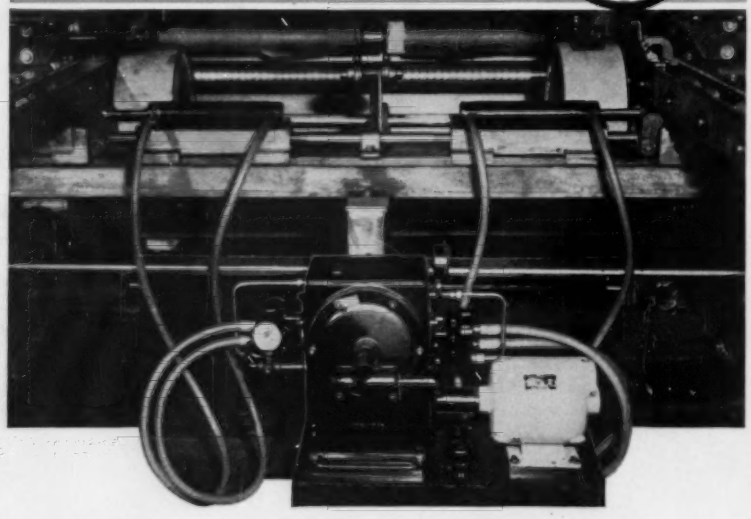
Call in Monsanto for expert counsel on how to "treat your cottons for life." In addition to Resloom E-50, Monsanto also supplies melamine finishing resins, tradenamed Resloom HP and M-75, as well as Catalyst AC for stepping up curing efficiency. Write for technical bulletin and experimental samples. Monsanto Chemical Company, Plastics Division, Room 1054, Springfield 2, Mass.

ASKANIA FINISHING MILL

NEWS

Automatic Cloth Guides for
TENTER FRAMES, LABEL MARKERS,
TUBERS and EXAMINERS

ASKANIA JET PIPE
FOR DEPENDABLE
CONTROL



PRODUCE MORE AT LOWER COST!

New Askania Application Bulletin Shows HOW

ASKANIA'S new REGULATOR APPLICATION BULLETIN NO. 22.1 is now off the press and available to the textile industry. It will be furnished upon request to anyone interested in specific details concerning the application of ASKANIA Automatic Cloth Guides to Tenter Frames of all types ...to Tubing and Examining Machines...to Label Marking Machines. It will explain how the Cloth Guide automatically handles any cloth, including flimsy lace, delicate silks, coarse mesh cloth, synthetics, *without contact with the cloth.*

WELL ILLUSTRATED—You'll find the above illustration showing the Askania Automatic Cloth Guide Control applied to a tentering frame typical of the 11 special photos and drawings used to provide the type of information you need to evaluate your own cloth guide potentials.

IMPORTANT FACTS— *For instance, Bulletin No. 22.1 contains the answer to these questions:*

1. How ASKANIA controls assure clipping, pinning closer to the selvage edge.
2. How the controls can be quickly and easily installed on new or existing machines by any competent mill mechanic.
3. How the operator is freed to examine the cloth.
4. Why the controls react to the flimsiest material with instant speed and powerful force on even the heaviest tenter frames.

MODEL SELECTION—Get full information on ASKANIA Cloth Guide Models and how to select the most economical unit for your own use. For your personal copy, write today to Askania Regulator Co., 274 E. Ontario Street, Chicago, Illinois.

ASKANIA REGULATOR COMPANY
"CONTROLS FOR INDUSTRY"
HYDRAULIC, ELECTRONIC CONTROLS & SERVOS, GENERAL SYSTEMS,
ENGINEERING & COMPUTER SERVICE, VALVE ACTUATORS & CYLINDERS

A SUBSIDIARY OF CPE

DEVELOPMENTS TO WATCH

CONTINUED FROM PAGE 6

The enzyme digests the sericin so that it rinses away easily.

DUCK FABRICS . . . for conveyor belts may be in for improved sales if moving sidewalks click. A 15-ft. working model was demonstrated in Philadelphia Sept. 17. Two actual systems were suggested: (1) a ¼-mile stretch costing $13.5-million, and (2) a longer route costing $16-million.

WOOL-TEXTILE PRODUCTION . . . continues to increase and future outlook is bright. During the first seven months of 1956, 9% more wool was used for apparel manufacture than for the same period last year. Men's and boys' fabrics were up 12%, and women's and children's fabrics were up 14%.

NEWS BRIEFS

Nonwoven fabrics have become an international operation. The Lantuck Div., West Point Mfg. Co., Fairfax, Ala., has tied up with Tootal Ltd., Manchester, England, in a jointly owned company to manufacture nonwoven fabrics in England under West Point's patents.

Canvas awnings will be promoted next year on network television. The campaign, to be launched jointly by the Canvas Awning Institute and the National Cotton Council, will mark the first time the NCC has employed network television on a continuing basis to promote a cotton product.

No-iron handkerchiefs for women, hand embroidered in foreign countries, are now on the market. Fabric is 65% Dacron and 35% cotton.

Cotton tops for convertible autos do not comprise 95% of the market as recently reported by the National Cotton Council, says Courtaulds (Alabama) Inc. Solution-dyed rayon tops will be used in 1957 models by Ford Motor Co., which claims in TV commercials that the fabric is 10 times as fade-resistant as conventional cotton tops.

CONTINUED ON PAGE 214

Cottons resist wear or wrinkles even more with RHONITE R-1 *and* RHOPLEX

Everybody knows that the best things come in pairs! So our wise little owls are now teaming up RHOPLEX acrylic resin with RHONITE R-1 for better-than-ever cottons or cotton blends. As the fabric requires, RHOPLEX acrylic resin can be added to produce

- ***better* wrinkle resistance with *equal* fiber strength**
- **or, *equal* wrinkle resistance with *superior* fiber strength.**

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

RHONITE *and* RHOPLEX *are trade-marks, Reg. U.S. Pat. Off. and in principal foreign countries.*

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HOW TO COUNT YOUR PROFITS

Full height hinged panels for economy in cleaning and maintenance

and here's how much

Completely automatic operation through feed, squeeze rolls and dryer

Increase production 33%—Decrease labor cost more than 33%

Figures comparing one year's operation of new SARGENT DRYING EQUIPMENT with older machines, show considerable savings in dollars and cents, *plus* better quality work.

HERE ARE THE FIGURES:

	Older Equipment	*New SARGENT Equipment*
Machines:	1 conventional feed 2 centrifugal extractors 1 8-section dryer	1 rotary-type feeder 1 pneumatic squeeze roll 1 8-section dryer
Operated:	7 days a week 3 shifts a day	5 days a week 2 shifts a day
Production:	350 lbs per hour	1,000 *up*, lbs per hour

And more uniform drying, day in, day out, with the new SARGENT machines. Whether you work with cotton or wool or synthetic fibres,

How much per pound savings would this mean to your mill?

C. G. SARGENT'S SONS CORPORATION

Graniteville, SINCE 1852 Massachusetts

PHILADELPHIA 19 — F. E. Wasson, 519 Murdock Road
CINCINNATI 15 — A. L. Merrifield, 730 Brooks Avenue
CHARLOTTE, N.C. — W. S. Anderson, Carolina Specialty Co.
ATLANTA, GA. — J. R. Angel, Mortgage Guarantee Building
TORONTO 1, CAN. — Hugh Williams & Co., 27 Wellington St. East

CONTINUED FROM PAGE 212

Peruvian textile manufacturers will be protected from foreign competition if a bill before the Peruvian Congress passes. The bill provides for a 50% ad-valorem import duty on 99 textile items, in addition to existing duties. Peru's textile mills are facing an economic crisis brought on by wage increases and foreign imports. Importers are protesting the bill vigorously.

More wool will be produced in Australia during the coming season. Production is expected to reach 4,500,000 bales, an increase of 12½% over last season. This extra wool may affect prices. However, Australian shipments of wool to Japan increased 50% last year; so the price picture may not change too much.

Polyvinyl chloride is now being applied to upholstery fabrics by a method that retains the stain- and abrasion-resistant qualities of PVC but leaves the fabric porous. The porosity improves the shape retention of cushions and adds to comfort. Imperial Chemical Industries developed the process.

A new annual loom census covering the number, type, and location of looms will soon be available if the House approves a bill directing the Secretary of Commerce to publish such information. The Senate has already approved the bill.

AMEROTRON'S NEW WOOLEN MILL

CONTINUED FROM PAGE 126

These creels have electric stop motions, and the yarn is wound on Whitin reels. Eight sections are wound on each reel, which moves to the right as the yarn builds up.

Warpers run on rails behind the reels, and the yarn is wound from the reel to the warper. Compressor rolls operate at 40 lbs. pressure on the warp to form a compact warp 92 ins. wide.

Filling Winders Are Automatic

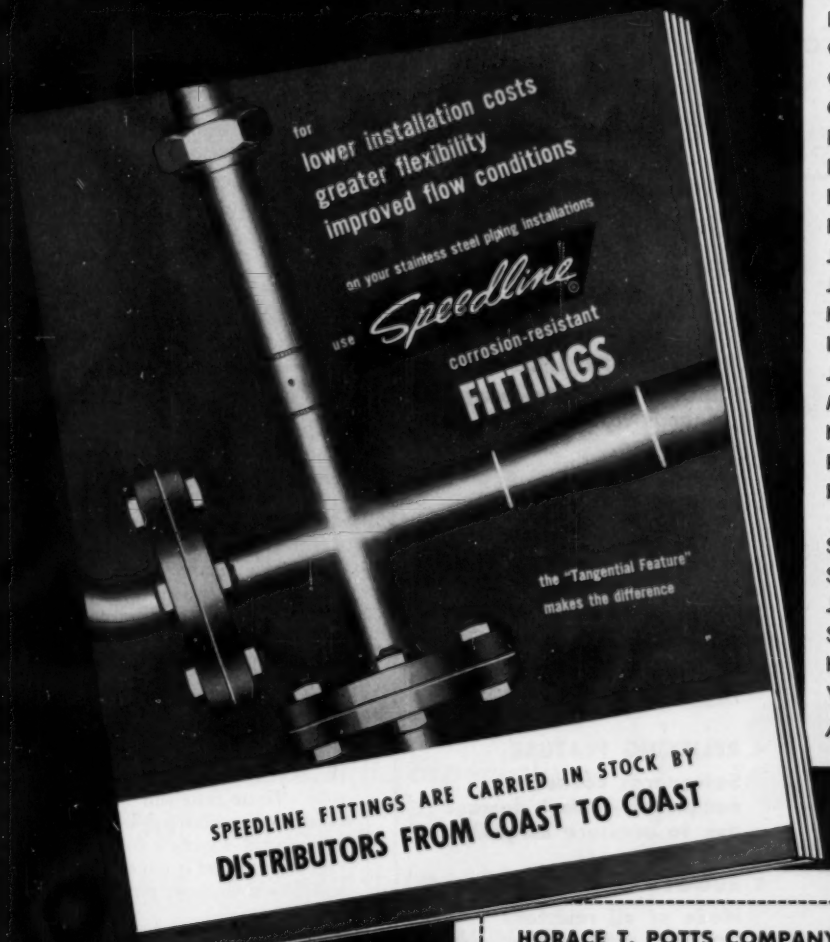
Fully automatic Whitin-Schweiter winders are used to wind filling bobbins. Each of the two winders has 75 spindles, and both have automatic quill-loading attachments. The bobbins are 8½ ins. long, and the spindle speed is 4,500 rpm. Full bobbins are delivered into quill boxes underneath each head.

There are 156 Crompton & Knowles

THIS ENGINEERING CATALOG CAN

SAVE YOU MONEY

ON YOUR STAINLESS PROCESS LINES!



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DISTRIBUTORS FROM COAST TO COAST

LEADING MILLS USE "SPEEDLINE FITTINGS"

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American Enka Corp.
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Dan River Mills, Inc. .
Dublin Woolen Mills
Excelsior Mills
Frankford Woolen Mills, Inc.
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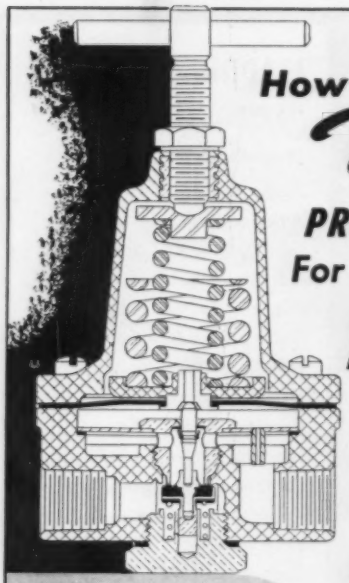

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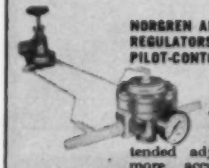

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W-3 looms and 24 Warner & Swasey weaving machines to produce many different fabrics, most of which are for women's dress goods.

Power perches are used in the burling department to help examine cloth from the looms. The fabric is taken from the back of the perch over a lighted frame. Imperfections in the cloth are removed, slubs and knots are taken out, and mispicks are replaced.

Fabrics Soaped and Fulled

After burling, all fabric is tacked at the edges to be passed through a soaper to shrink and full the cloth. Eight dolly washers are used to rinse the soap out of the cloth, but a Hunter eight-bowl continuous washer will shortly scour and rinse all production in one continuous operation.

The chain stitch used for tacking is pulled out automatically as the fabric is pulled from the truck to the scutcher where the fabric is beaten out and partially extracted by passing it over a vacuum slot.

Carbonizing is the next operation, which is performed on a Hunter continuous machine.

After passing through a chemical solution, the fabric travels through a set of squeeze rolls and through a 12-chamber dryer and baker. The temperature is gradually increased from 160° to 250° F. to break down the vegetable matter remaining in the wool.

A Riggs & Lombard continuous crusher then treats the cloth to remove the charred vegetable matter. From the feed scray, the fabric is looped three times over eight sets of steel rolls. These rolls run the fabric in a forward direction for 14 secs. and in a backward direction for 10 secs. The vegetable matter is removed by vacuum and blown through pipes to the roof.

Dye Mixed in Separate Room

Dyeing is then done in Hunter stainless-steel kettles with acid colors. Dye liquors are mixed in a drug room overlooking the dyehouse. Each mixing tank has its own individual mixer, and the dye liquors are delivered through Pyrex piping and sprayed into the kettles through small nozzles.

The fabric is dried on an eight-pass Hunter tenter dryer fitted with Askania edge controls to keep the selvages level. The fabric is examined as it goes through this operation.

Shearing is done on three-blade Davidson shears to remove the projecting fuzz and give a smooth appearance to the fabric. The fabric is passed several times through the machines and both sides are sheared. The lint is removed by vacuum and deposited in

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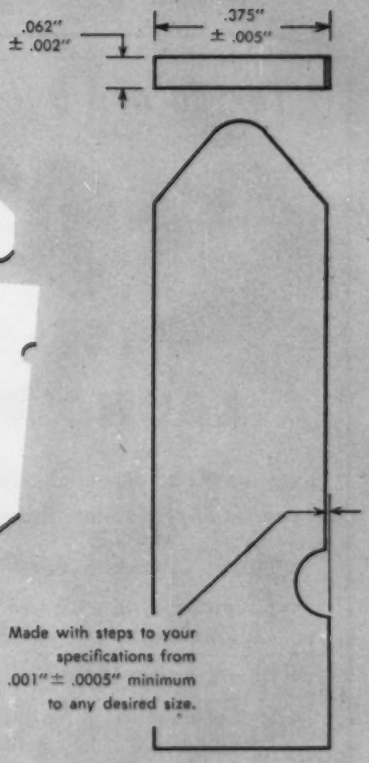
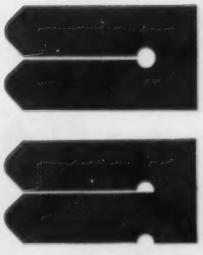
CERAMIC CLEANER BLADES



Made with steps to your specifications from .001" ± .0005" minimum to any desired size.

Typical AlSiMag Cleaner Blade Design. Great dimensional uniformity. Precision ground, all surfaces lapped flat and parallel.

Reduce yarn defects caused by broken filaments, waste, lint. Especially designed for synthetics. Fit standard holders. Longer Life—New, super-hard ALSIMAG 614 Alumina.



By arranging the steps to adjoin, you will get double spacing.

With steps arranged in sequence, the same holders give single spacing.

Users report substantial increases in production of top-quality filament yarns. Custom samples supplied promptly at reasonable cost. Test these AlSiMag Ceramic Cleaner Blades in your plant and let your own quality and cost records show you the great advantages of these new blades. Send blueprint or sketch for complete details.

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- and other deteriorating effects of light and laundering.

More is required of modern fabrics than ever before if they are to stand up in competition today. The Atlas Fade-Ometer and Launder-Ometer will give you dependable test results in a minimum of time and at minimum cost.

Write for information on the new Atlas Scorch Tester for testing damage due to chlorine retention.

ATLAS ELECTRIC DEVICES COMPANY

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WEATHER-OMETERS • FADE-OMETERS • LAUNDER-OMETERS

collecting tanks. A light press is then followed by decating on a David Gessner reverse steam-controlled decator. After a final inspection, the fabric is ready for packing and shipping.

Stock-dyeing machines are now dyeing raw wool. This wool is delivered to the high-pressure machines by flexible pipes. After dyeing, the wool is lifted from the machine by overhead cranes and delivered to continuous drying machines.

The wet-finishing section is conditioned by three saturated-air washer systems, but the remainder of the plant is completely air conditioned. The manufacturing areas have booster-type central-station systems.

Refrigeration for these areas is supplied by a 1,200-ton Worthington centrifugal unit driven by a 1,000-hp. motor. A forced-draft cooling tower on the roof cools condensing water that supplies 2,760 gals. of cooled water per minute to the various units.

Amerotron's new Barnwell plant covers 537x600 ft. and is of windowless construction. The roof is of preset concrete slabs, and more than 1-million jumbo-type bricks were laid during the plant's construction.

AATCC— BETTER USE OF SCIENCE

CONTINUED FROM PAGE 129

textile science and research is assured.

Work in this field is already in progress in at least one university and one consulting research laboratory, and there is no doubt of its rapid expansion in the near future.

Automation is a common word today in reference to industrywide process modification. It is not generally associated with the textile industry. However, there is a trend toward automation in the concepts that fibers can be handled with greater efficiency by the application of principles of aerodynamics, fluid mechanics, and electrostatics; and it would not be surprising to see some revolutionary methods introduced into the textile industry.

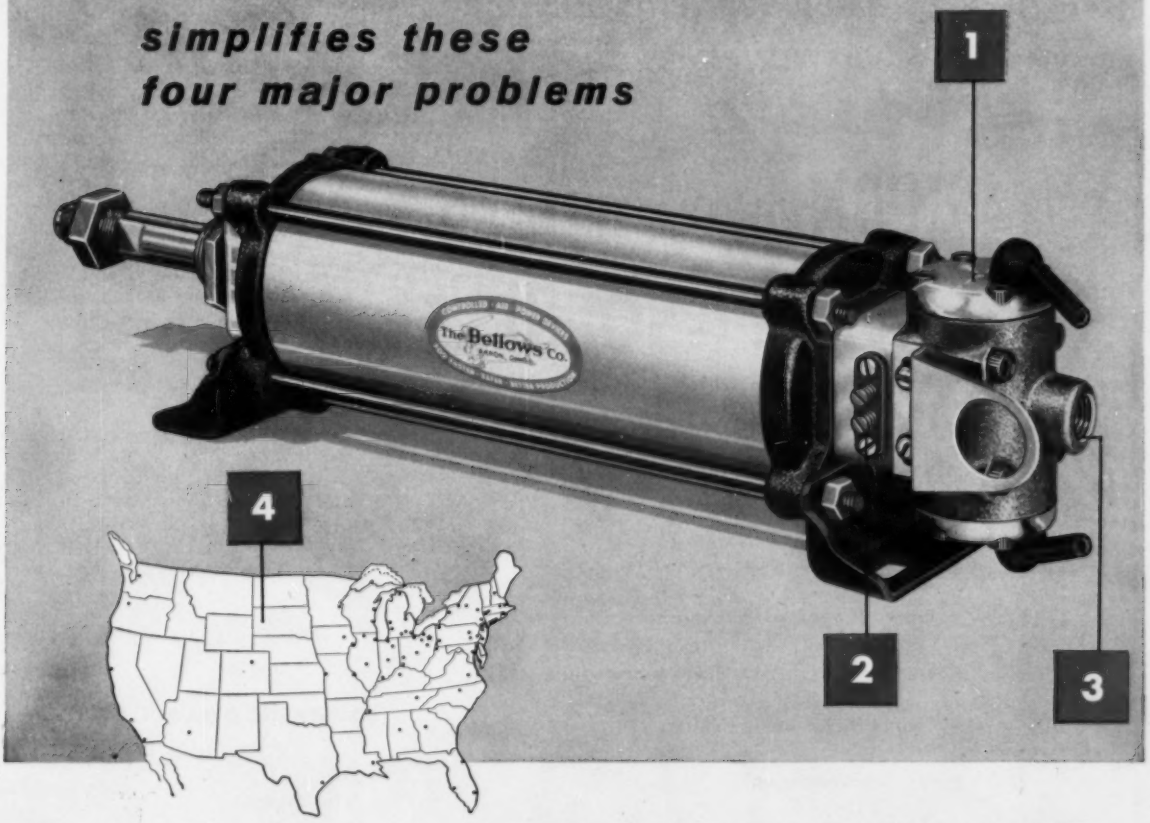
Textile Needs Are Great

The research needs of the textile industry, in terms of manpower, are even greater than those of many industries heavily engaged in research. Therefore the opportunities that can be offered by the textile industry in science and engineering are at least as great as are the opportunities offered by other important industries in the United States.

The challenge that faces the textile

THE Bellows AIR MOTOR

simplifies these four major problems



1 **Built-in electrically controlled directional valve, either 8 or 110 v., simplifies design problems.**

2 **Built-in speed controls for accurate regulation of piston rod speed simplify control problems.**

3 **The single air connection, which can be made with flexible air hose, simplifies installation problems.**

4 **More than 125 Bellows Field Engineers in the United States and Canada simplify service problems.**

Design, control, installation and service are problems every O.E.M. Design Engineer faces when selecting components for automation.

In pneumatic design, the Bellows Air Motor—the air cylinder with the built-in valve—simplifies his problems. Instead of separate valving for directional control, separate valving for speed control, multiple mounting, complex and cumbersome piping for air supply—he works with one compact, complete power unit.

Not only are design and control simplified when you specify "Bellows", but installation costs are less; and you know wherever your machine is shipped, a Bellows Field Engineer will be available for service if it is ever needed.

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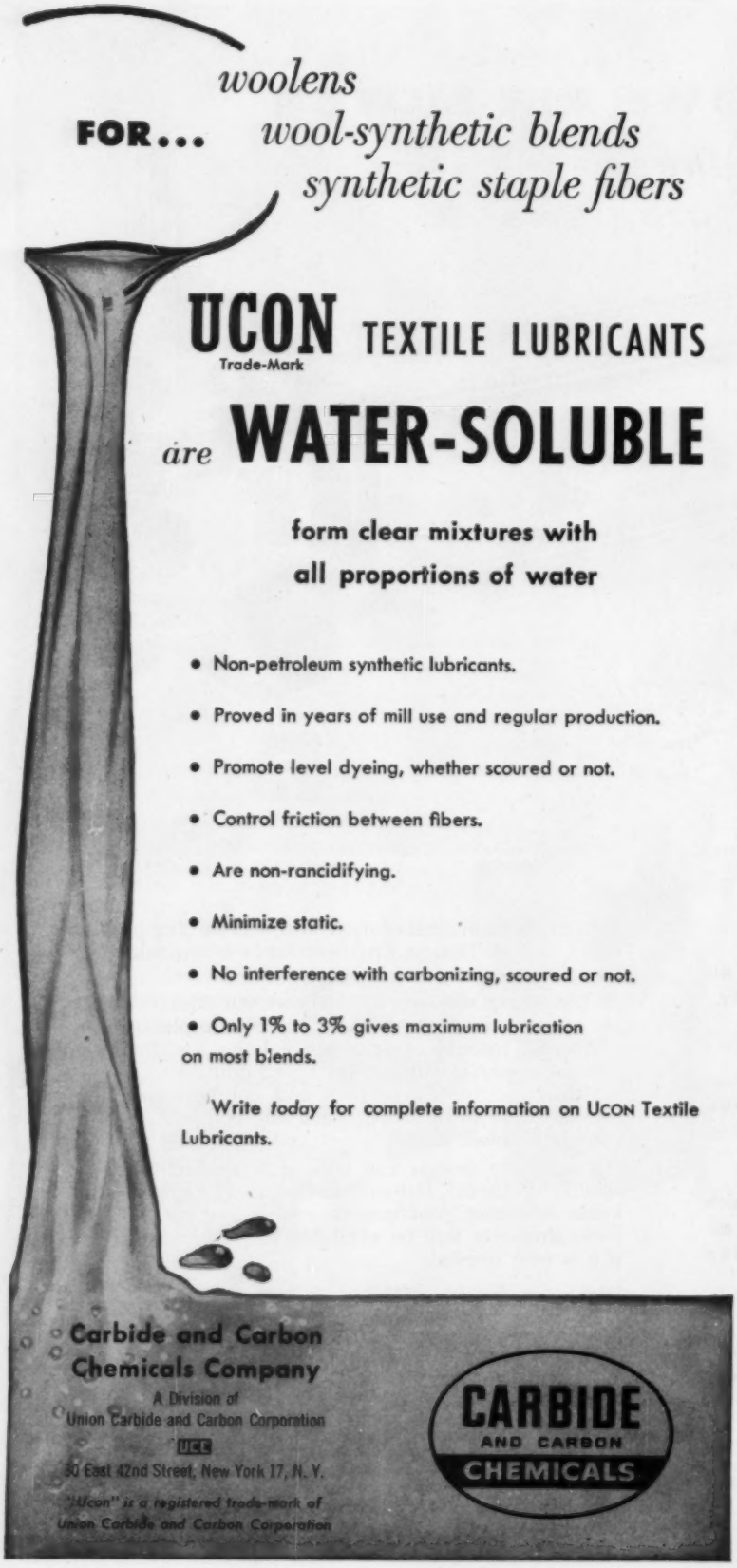
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industry today is twofold:

First, it must sincerely embrace research as a sound philosophy; and having done so, it must establish adequate facilities for its execution.

Second, it must communicate to the scientific and engineering fraternity the fact that it has opportunities unlimited to offer young men who seek a challenging future in their respective specialties. This step can only be accomplished by a concerted, combined industrywide effort to describe in detail what the textile industry has to offer and to make the presentation in such a convincing manner that the industry will emerge as a top competitor for the limited supply of men and women who comprise the new body of scientists and engineers each year.

The extent of the success of such a promotional program will have a marked bearing upon the ability of textile science to become recognized as the worth-while area of scientific endeavor that it truly is. It will also have an equal bearing upon the survival of the textile industry in a world of increasing demand for scientific and technological achievement.

SYNTHETIC DYES FOR COTTON

CONTINUED FROM PAGE 134

Vat Dyes

About 37% of all cotton dyes are vats, and about 22% of all vats are anthraquinone. The rest are of indigoid derivation.

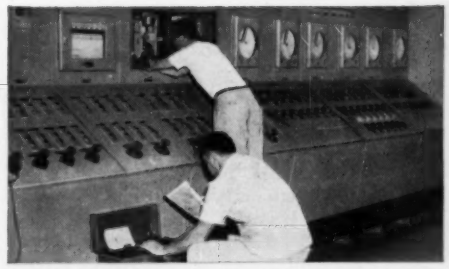
Anthraquinone Dyes

Superior washfastness and bleachfastness are the properties that set the anthraquinones above the rest of the field. Their disadvantages are high cost and occasional dullness.

Vat dyes possess a reversible oxidation-reduction system; but it is the reduced form, soluble in water, that is used to dye cellulose. In practice, the reduction is carried out with sodium hydrosulfite and caustic. The fabric is immersed in the soluble reduced or leuco system and then oxidized.

The first anthraquinone dyes were nearly all amides; but they were not fast, and today the only ones still used are anthraquinone 1-amides of aromatic carboxylic acids. More complex anthraquinone derivatives include Vat Yellow GK, Vat Brilliant Violet RK, and the superior class of derivatives of azobisbiphenyl-carboxylic acid.

Other classes of anthraquinones of



Maintenance engineering

You can arrange to have a Honeywell service engineer visit your plant at regular intervals to inspect, clean, and adjust your instruments and controls. He's factory-trained and field-experienced in keeping good instruments in top operating condition. If an emergency should arise, a phone call will bring a Honeywell service engineer to your plant in a hurry.

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A Honeywell branch office near you can be your storeroom for standard parts . . . in addition, the Parts Depot in Philadelphia carries a complete stock of all normally needed parts. With Honeywell stocking your spare parts, you save storage and inventory control costs. Most shipments are made within 24 hours after orders are received.

Application engineering

Experienced Honeywell application engineers know your industry and processes. They design *complete* systems of instrumentation, reducing the work of your own engineering staff. From the broad Honeywell line, they recommend instruments that are exactly right for the job. And because Honeywell supplies all types of instruments, recommendations are made without bias. Service engineers will, if needed, help with installation and startup of your system.

Service is the big extra you get with Honeywell instrumentation

Practical service training

The tuition-free Honeywell Training School teaches your instrument technicians the most up-to-date maintenance methods, fits them for the kind of problems they may encounter on the job. Intensive courses range from two to fourteen weeks.

Honeywell offers you far more than instruments. You get service whenever and wherever you need it . . . service that begins when you first decide you need instruments, and continues long after they're installed. This service is always conveniently close at hand, for there are more than 110 Honeywell sales and service centers located strategically throughout the U. S. and Canada.

Prompt, competent service by nearby field specialists is an important plus-value of Honeywell instrumentation. Your local Honeywell sales engineer has all the facts on this service as it relates to your instrumentation needs. Give him a call . . . he's as near as your phone.

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First in Controls

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present commercial importance include:

Vat Yellow GC—a powerful bright greenish yellow synthesized from 2, 6-diaminoanthraquinone.

Vat Red FBB—an oxazole synthesized through ring closure of an o-hydroxyamide. This red is fast, though somewhat dull in shade.

Vat Brown R, Vat Brown BR, and Vat Khaki 2G—carbazoles of outstanding lightfastness synthesized by several methods.

Indanthrone Blue BC—the most valuable of the anthraquinone blues. It has outstanding lightfastness. It is made by chlorination of Indanthrone or by condensation of 1, 3-dibromo-2-amino anthraquinone with itself, followed by replacement of bromine with chlorine.

Vat Olive Green B—an acridine of very good lightfastness.

Vat Orange 2RT—a pyranthrone the synthesis of which starts with 1-chloro-2-methylanthraquinone. The class has great color strength and fastness.

Vat Brilliant Orange RK—an anthanthrone.

Vat Dark Blue BO—a violanthrone used widely to produce blacks, grays, and navies.

Jade Green—a violanthrone derivative sold in large volume ($5-million in 1955).

CONTROL TWIST OF PLY YARN

CONTINUED FROM PAGE 167

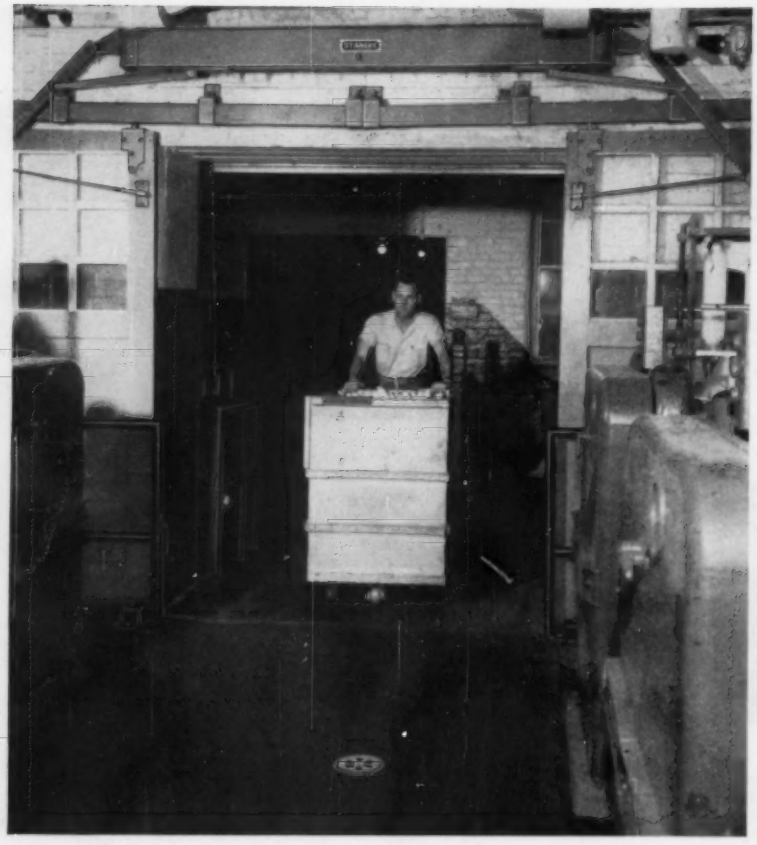
twist gears be changed, or should the bands be changed from Size No. 30 to No. 40? Tests show that it is best to change the twist gears.

Since the twist gears are not standard now, extra precautions have to be taken against errors when yarn numbers or plies are changed. A color scheme for gears and a warning card on each twister solved this problem.

Further investigation in variation of twists shows that uneven wear of the bottom roll (delivery roll) affects the twist greatly. The journals of the top rolls on some twisters had worn uneven, and the top roll formed an oblique angle to the bottom roll, as shown in an exaggerated position in Fig. 2. Therefore this oblique angle caused the bottom roll to wear, as shown in Fig. 3.

Repair Top Rolls

On rolls with this wear, the twist varies as the traverse guide carries the end of yarn from one side of the top roll to the other. At the smaller portion of the bottom roll, the delivery



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Drafts or loss of humidity mean end breakage near the doors, resulting in accumulation of waste, work stoppage, poor quality and lower production. So mill doors must stay open *only the minimum time required to let traffic through.* That's why Colonel Elliott Springs uses 40 Stanley Magic Door Controls in the various plants of his world-famous The Springs Cotton Mills. Reductions in door accidents and door maintenance costs are bonus benefits.

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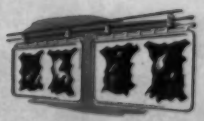

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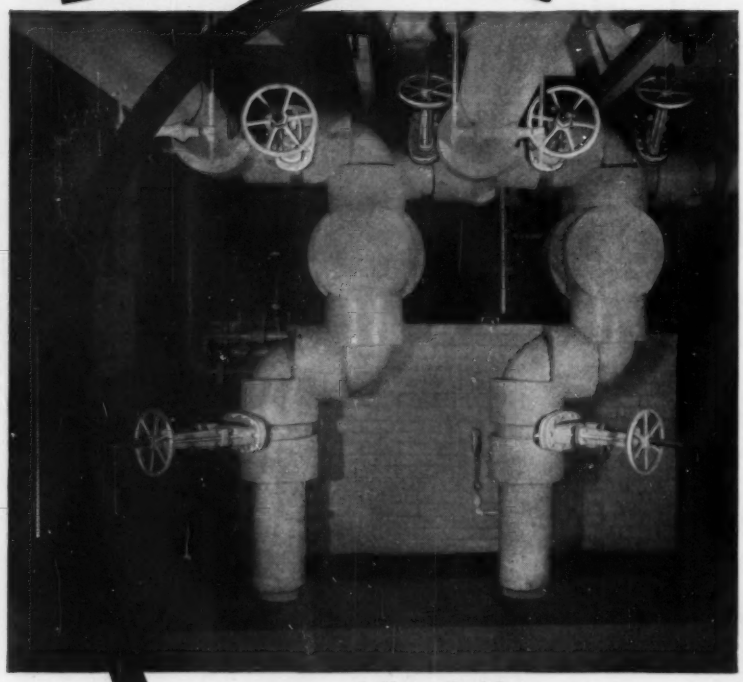

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That is why you find more uninterrupted service, less shutdown, in plants that specify Fairbanks 125-pound Iron Body Gate Valves — the valves with proven dependability built in!

Fairbanks Iron Body Gate Valves are bronze mounted* both with inside non-rising screw and outside screw and yoke. Available with screwed or flanged ends. Bodies and bonnets made of high strength alloy cast iron. Wedges in 2" to 4" sizes of solid bronze; in larger sizes to 24", wedges are alloy iron with rolled in bronze face rings and bronze bushed stem connections. The threaded bronze seat rings are screwed into body at angle conforming to taper of wedge.

(*ALL IRON GATE VALVES ALSO AVAILABLE.)

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is, of course, less and the twist greater. The twist is less when the yarn reaches the larger section of the roll.

To correct the condition, new journals were put in the worn top rolls. Bottom rolls worn only slightly were turned down in the machine shop. Badly worn bottom rolls were replaced with new rolls.

Rust and dirt on the rings of wet twisters often cause travelers to stick when twisters are started. When the stickage is severe, the end of yarn ruptures. When travelers stick only slightly, a section of yarn is not twisted. The length of the untwisted yarn depends on how long the traveler is stopped. Obviously waste yarn is made.

To prevent sticking travelers, keep the rings well polished and lubricated.

Stop Hard and Soft Twist

Occasionally a bobbin of yarn has sections with both too little twist and too much twist. This faulty twist may not be discovered until the yarn is in the next mill department.

This uneven twist is made when the end of yarn slips off the top roll. The yarn may be brushed off the roll accidentally by a worker during cleaning, or a traverse guide out of alignment may carry the yarn too far to one end of the roll, where it slips off.

Sometimes an end slides through the traveler without being twisted because there is no fraction to cause the traveler to rotate. The end of yarn may also be held too tight when it slides off the top roll; then excessive twist is inserted. If the end is held long enough, breakage occurs.

However, the hard- and soft-twist action may be intermittent: the end will slip through for a moment or two without twist; then it will be held tight for a moment with excessive twist. This intermittent action may continue for a long time before it is discovered.

Keep Little Items Straight

When an end is found off the top roll, the traverse guide should be examined for correct alignment.

Since mixed twist gears can cause wrong twist, extra gears should be stored on pins or skewers or in small compartments and should be marked correctly. When new gears are bought, the number on the gear should be checked with the actual teeth in the gear.

Yarn twist should be checked systematically. A record should be kept of all tests made, and the record should include the twist gear used.

An easy way to follow up tests is to

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Introducing a NEW *16 inch* ROVING CAN *by* Spaulding

WITH SUPER-XI INTERIOR FINISH

NEW Super-XI inside finish is a tough, smooth, protective coating. It laughs at acetone and other chemicals — refuses to become soft and sticky when used with synthetics. Real protection for delicate textile fibers. Minimizes surface scratching due to rough can springs.

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REVERSE TOP RING. Securely fastened without rivets for a flush no-snag, no-drag interior. Perfect protection for delicate textile filaments. (Rolled Fibre top available at no extra charge where static electricity is a problem.)

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BERKELEY 10, CALIF.
2221 Fourth St.
BOSTON 16, MASS.
585 Boylston St.
Boston Area:
WELLESLEY HILLS 82, MASS.
44 Washington St.
BRIDGEPORT 5, CONN.
2889 Fairfield Ave.
CAMDEN 1, N. J.
227 South Sixth St.
CHICAGO 23, ILL.
4770 Lincoln Ave.
CHICAGO 38, ILL.
5604 West 63rd St.
CLEVELAND 14, OHIO
2108 Payne Ave.
CLEVELAND 16, OHIO
29035 Detroit Rd., Rocky River
DAYTON 2, OHIO
136 So. Ludlow St.
DETROIT 1, MICH.
4612 Woodward Ave.
FORT WAYNE 6, IND.
2301 Fairfield Ave.
LANSING 10, MICH.
2021 South Cedar St.
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LOS ANGELES 15, CALIF.
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NEW YORK 55, N. Y.
384 East 149th St.
ST. LOUIS 5, MO.
7247 Olive Street Road
ST. LOUIS 17, MO.
1500 Big Bend Blvd.
TONAWANDA, N. Y.
310 Wheeler St.
WESTFIELD, N. J. (Newark Area)
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20 Algie Ave.

SPAULDING FIBRE COMPANY, INC., 310 Wheeler Street, Tonawanda, New York

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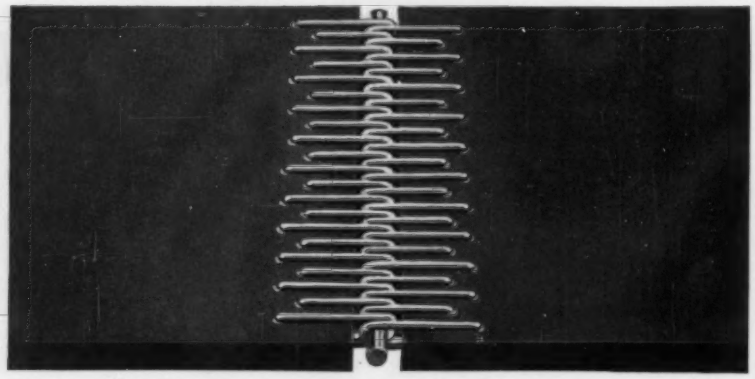
the fastest way to make ends meet

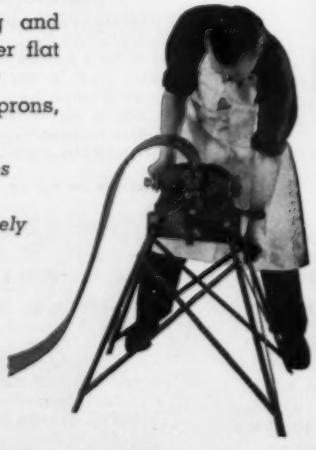


Clipper

HOOKS and LACERS

in materials handling, food harvesting and processing, power transmission, wherever flat ends must be joined.
Clipper belt lacing equipment for belts; aprons, tapes and ribbons!

- *produces secure, flexible joints in minutes*
- *does not injure belting*
- *gives smooth, flexible joint that rides freely over conveyor rollers*
- *is flexible both ways of the belt*



WRITE FOR FREE SAMPLE

Send a sample of your belting, apron or ribbon to Clipper with an outline of your problem. They'll determine the best method of fastening and then lace your sample FREE.

Ask your Industrial Distributor for Clipper Products

Clipper BELT LACER COMPANY

980 Front Ave., N. W., Grand Rapids 2, Michigan

put the results on a graph, as shown in Fig. 4. The graph is made of averages of six twist tests from six frames. The graph shown requires that the average twist must not go below 11.50

SOLUTION—DYED RAYON

CONTINUED FROM PAGE 137

bobbins. Full bobbins are quickly doffed with the aid of an extra bobbin rail.

Foster Jumbo winders with 60 spindles are used to put the yarn on cones that weigh 10 lbs. when full. During this process, thin places are removed by running the yarn between two metal cones separated by a gap set to the size of the yarn. Slubs and other thick places are removed with a slub catcher.

All Ends Are Spliced

No knots are tied in the yarn. All ends are spliced with a latex compound. The winder operator carries a latex applicator on her left wrist. To piece up an end, she cuts each end of yarn square and removes about half the fibers ½ in. from the end of each yarn. One end of yarn is pressed on the latex applicator, and the two ends are brought together. They are twisted to form a firm splice that travels freely through the tubes of tufting machines.

When ends break or run out during spinning, the spinner runs a different-colored yarn at the piece-up so that the winder can spot it and make a latex splice.

Twisting is done on 100-spindle Atwood frames that hold 150 10-lb. cones on each side. To allow this much yarn to be creeled, the ends are taken off the cones and run through the hollow creel spindles. Cones can then almost touch because there is no winding-off problem.

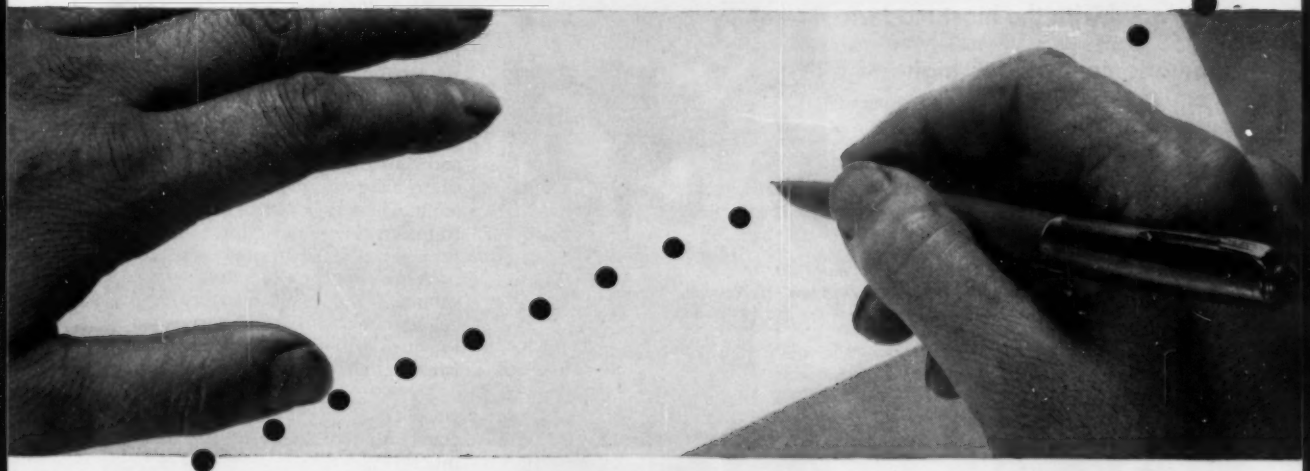
There are individual stop motions for each end, and individual ends are spliced. Most yarns are three ply, but some two-ply and single yarns are made. The twister bobbins then go to the cone winders, and the yarn is wound back on cones.

The final operation is precision winding. These winders run at slow speed and were specially made in the mill to produce tightly wound cones that require little space.

Tweed Yarns Are Tufted

Some tweed yarns are produced by twisting three yarns of different colors together, such as brown, beige, and white. To evaluate the final appear-

Before you sign your new contract for caustic soda



Right now is the time—before you make your new contract commitments—to carefully review the form of caustic soda you plan to buy.

If you have been buying flake or solid, you may find it a profitable move to switch to liquid.

On the other hand, if you have been buying 50% liquor, you may save substantially by converting to 73% concentration.

Naturally, your location and the volume of caustic soda you use will affect how much your savings may be. But only an up-to-date analysis can tell. Changes in freight rates or changes in your own operation in recent years may have altered drastically the most economical form of caustic for you.

So, before you make your new commitments, consult Columbia-Southern's Technical Service Department. A staff member will be assigned to review the whole picture and to help you determine the most advantageous form of caustic soda you should buy.

Write, wire or telephone our Pittsburgh office today.

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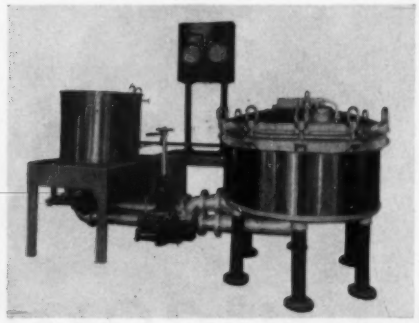
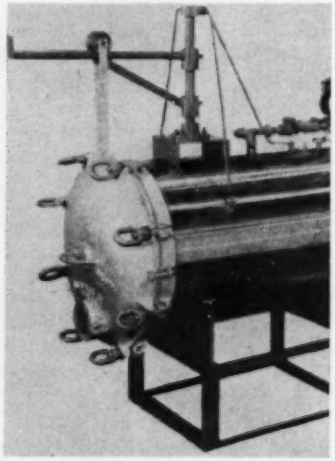


Single-Kier Package Dyeing Machine

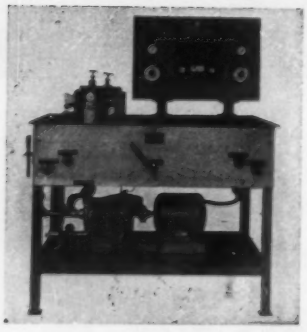
Today's Most Economical Dyeing Equipment

Gaston County offers you a complete line of today's most rugged dyeing equipment... engineered with the most modern automatic controls for high-pressure, high-temperature dyeing essential for today's new yarns.

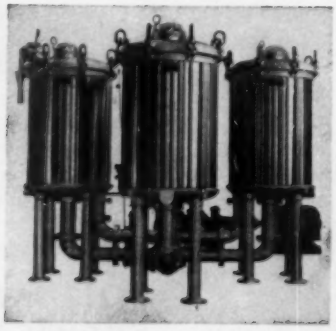
Write for complete information.



New Hy-Vacuum Pressure Autoclave for Twist Setting



Laboratory Dyeing Machine



Multiple-Kier Beam and Package Dyeing Machine

GASTON COUNTY DYEING MACHINE CO.

Pioneers In Automatically Controlled Dyeing Machinery

STANLEY NORTH CAROLINA

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A. R. Breen
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Chicago, Ill.

The Rudel Machinery Co., Ltd.
614 St. James St. W., Montreal
260 Fleet St. E., Toronto

ance of these yarns in a carpet, Lehigh runs them through a Ten-Tex tufting machine, which is part of the laboratory equipment.

Also included in the laboratory is a Pacific evenness tester, which is used on sliver and yarn where unevenness is suspected. Yarns are also tested in the laboratory for correct twist, strength, and moisture content.

Solution-dyed yarns are a little more expensive than regular yarns. However, Lehigh expects a big saving in the finishing process because the drying operation, which requires considerable time for heavy carpets, is eliminated.

WARP TYING

CONTINUED FROM PAGE 161

started. The temple caps are not removed from the loom.

Checking the New Warp

The warp is pulled over as the loom runs. A steel hook is used to turn the Roper let-off and pull the pick wheel in the take-up gears. In this way, the warp is pulled over quickly.

As soon as the knots are pulled through the temples, the lease man refastens the friction on the let-off and runs the loom until about 1¼ ins. of cloth are woven. Then he leaves the loom. He does not draw in any broken ends or attempt to straighten the pattern. Each lease man pulls over the patterns he puts up to be tied.

When the lease man leaves the pulled-over warp, the smash hand draws in all ends out and checks the woven cloth.

SPINNING & WINDING

CONTINUED FROM PAGE 157

standard cone from exactly four of the 12-oz. bobbins. The cones have only three knots and no short piecings, an important point where knitters are concerned.

The spinning room has an air-washing system that used to cause trouble when the baffles became clogged with lint. The baffles had to be removed, a tedious job, and washed down with a high-pressure fire hose.

Falls' mechanics rearranged the piping system so that the entering baffles can be hosed down while the washer is running. The exit baffles are cleaned when the fan is shut down. Water used for cleaning is under 45 lbs. pressure.

These are actual comments made at the Southern Textile Exposition . . .

"Our Pneumafil paid for itself in less than one year, we especially like your new collector unit . . ."

"We put Pneumastop in six months ago and now the roving runs much better with fewer ends down in our spinning . . ."

"I'm glad we decided on Lint Free Creels because they look better and stronger than any of the other creels . . ."

"Our Pneumafil Central Material Recovery System blends the cotton back in much better, and our ends down count is much lower because of the even humidity distribution . . ."

"We like your Bobbin Holder because nothing drags on the roving . . ."

Let one of our engineers visit your mill and explain how you too can improve production and quality and at the same time reduce cost with Pneumafil Products — remember there *is* a difference.

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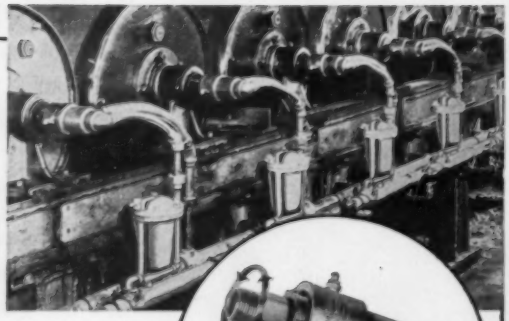

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You can't beat this combination for heating drums and saving steam. The ROTARY UNION* is a trouble-free precision mechanical rotating seal which is self-adjusting and self-aligning. The UNITRAP® is the only trap which *automatically* delivers peak efficiency at all pressures from 0 to 125 lbs. Handles a tremendous volume with a minimum of wear. All working parts are stainless steel. Just order by pipe size, ½" through 2". Contact our nearest office or write for Bulletin 700T and 800T.

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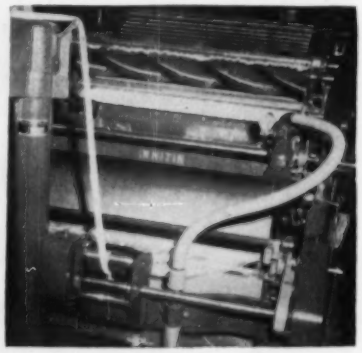
OPENING, PICKING, CARDING

CONTINUED FROM PAGE 95



Card Stripper

The Rolaslivup for taking fibers off the doffer with a pair of controlled rolls that replace the reciprocating comb was shown by Abington Textile Machinery Works, North Abington, Mass. The improved stripper rolls fibers off the doffer but leaves them in parallel formation. The doffer, which can run 98 rpm., lessens fiber waste and improves web appearance. Piece-ups are uniform. (G-244)

Moisture Monitor

A moisture monitor for measuring moisture in picker laps was shown by Strandberg Engineering Laboratories, Inc., Greensboro, N. C. The instrument measures moisture in the cotton rather than humidity in the air. The device is directly connected to the picker, and it detects any change of moisture. One instrument is used on each opening line. (G-245)

Card Coilers

Two models of card coilers were shown by McDonough Power Equipment, Inc., McDonough, Ga. One model accommodates 14-, 15-, and 16-in. cans and is made in 36- or 42-in. heights; and the other model is for 18-in. cans and is made in 36- or 42-in. heights.

The coiler can be installed in 30 mins. and is easily accessible when maintenance is needed. (G-246)

Lap Conveyor

An overhead conveyor for handling picker laps was shown by W. D. Dodenhoff Co., Inc., Greenville, S. C.

For other moving applications, weights up to 240 lbs. can be handled

Simplest pneumatic controller to use and maintain

Bristol gives you improved stability of control action –but keeps basic simplicity of Series 500 Controllers

Bristol Series 500 Pneumatic Controllers are the easiest controllers on the market to use and maintain–still the most dependable and trouble-free.

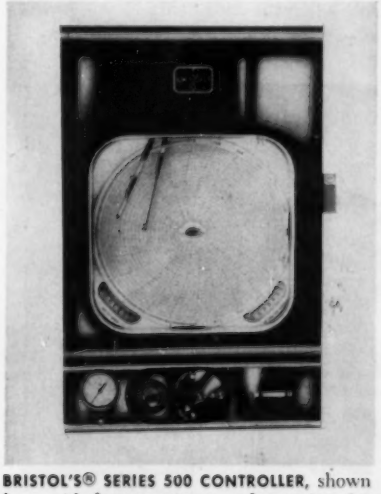
The reason? The basic simplicity of the operating mechanism. *That* hasn't changed in the years since we introduced this long-time favorite among instrument men. Reason No. 2: they are equipped with famous Bristol measuring elements.

Easy calibration

It's this foolproof simplicity of the control system that makes calibration so easy on Series 500 controllers. *Only one* service adjustment is required and provided to exactly calibrate the control system. The control system can be completely disassembled and after reassembly (even with replacement of parts) can be restored to precise calibration with this *one* adjustment.

No special tools are required. A ¼-inch wrench is all that's needed.

The 500's completely interchangeable parts, accurately designed and manufactured to extremely close tolerances, make possible this built-in calibration.



BRISTOL'S® SERIES 500 CONTROLLER, shown here with four-position transfer station. Internal station also available.

And check these features:

Improved control stability—advanced automatic control techniques have been applied by Bristol engineers to improve stability of control action in the new Series 500W Controllers.

Wide-band models offer choice of ½ to 400% proportional band with simple band shift.

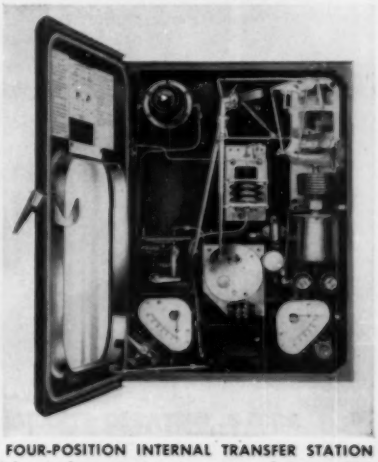
True zero derivative setting—exclusive with Bristol.

Reset action stops in reset models—again a Bristol exclusive—prevent loss of control due to prolonged deviation from set point.

Four-position internal transfer station with automatic, manual, test, and service positions, plus pressure-matching button and manual pressure regulator, for maximum convenience in process control.

Complete data available

Write today for engineering data on Bristol's Series 500 controllers for your critical control problems. They're available for *automatic control of temperature, pressure, vacuum, draft, absolute pressure, liquid level, humidity, pH value, electrical measurements, and mechanical motion.* The Bristol Company, 103 Bristol Road, Waterbury 20, Conn.



FOUR-POSITION INTERNAL TRANSFER STATION shown here in interior view of Series 500 Controller. Permits remote manual control, testing and servicing without disconnecting instrument.

YOU CAN GET THESE CONTROL MODES:

1. **Fixed narrow band** (on-off)
2. **Proportional band**—½ to 100% and ½ to 30%.
3. **Reset with wide band**—rates 0.1 to 10 or 1 to 300 repeats per minute. Proportional band ½ to 400%.
4. **Derivative (rate)**—½ to 100% proportional band. Derivative time 0.2 to 20 min., plus zero derivative setting.
5. **Reset plus derivative**—proportional band and reset rate as in "reset" above. Derivative time as in "derivative" above.

YOU CAN HANDLE THESE CONTROL PROBLEMS:

1. Cascaded control 2. Selective control 3. Ratio control 4. Time-program control 5. Pneumatic transmission.

6.55

BRISTOL *TRAIL-BLAZERS IN PROCESS AUTOMATION*

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

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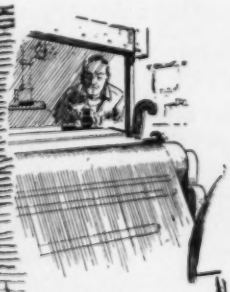
give
Superior Results



U.S. Patent Nos.
2,516,632;
2,516,633;
2,516,634.

The unique properties of Penford Gums (highly substituted starch ethers) in both the fluid state as well as in the form of dried films facilitates improvements in warp sizing and textile finishing operations.

WARP SIZING—The complete range of viscosities available in Penford Gums makes them adaptable to use in a variety of difficult-to-size spun yarns.

combed cottons	*hydrophobic fibers*
viscose	*blends of hydrophobic and other fibers*
viscose-acetate blends	*worsted fibers*

TEXTILE FINISHING—The versatility of Penford Finishing Gums with their high degree of reactivity with both melamine and urea-formaldehyde resins affords superior finishes. They are durable to laundering, provide for dimensional stability of fabric, and are wrinkle resistant.

Penick & Ford's Technical Sales Service Engineers are at the service of Textile Finishers and Processors to assist in the selection of the Penford Gums best suited to produce the desired finish on specific finishing equipment.

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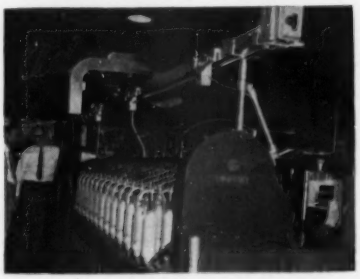
with the conveyor at each point.

The conveyor runs horizontal, straight up, straight down, or upside down. It turns curves as sharp as 16-in. radius. Special frogs, switches, turntables, and carriers are supplied. (G-247)

DRAWING, COMBING, ROVING

CONTINUED FROM PAGE 96



Roving Stop Motion

Adams, Inc., Greenville, S. C., showed the Adamstop stop motion operating on a Whitin 12x6½ roving frame. The fiber strip has been replaced with extruded plastic to resist buckling. A Parks-Cramer roving frame cleaner was working in conjunction with the stop motion.

When an end of roving comes down, the drop wire energizes the stop motion, cuts off the power, and turns on a signal light. A 12-v. electrical circuit to a cam on the track of the cleaner closes the cam and actuates the damper so that the air blast to the stationary roving is cut off to prevent ends being blown down. (G-248)

Drawing-Frame Conversion

A high-speed drawing-conversion unit that runs 300 ft. per min. was shown by Gossett Machine Works, Gastonia, N. C. All gears and studs, bottom and top rolls, calender rolls, and the coiler have antifriction bearings. For 16-gauge frames, cans are

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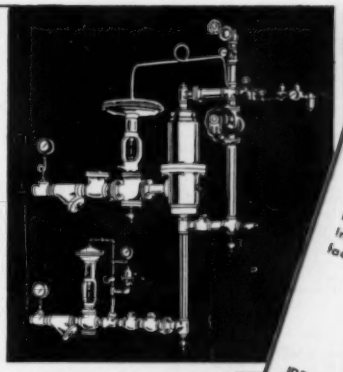
Pick INSTANTANEOUS HOT WATER HEATERS

ENGINEERED FOR SERVICE

Industries everywhere are replacing outmoded water heaters with Pick Instantaneous Water Heaters. Here are the reasons:

Pick STEAM INJECTION WATER HEATERS



GIVES YOU MAXIMUM EFFICIENCY

- Water is heated INSTANTLY by steam injection. Fuel savings are high because there is no waste — water is heated only as used.
- Pick Heaters maintain continuous flow at preset temperature for bleaching, dyeing, scouring, etc.
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- No storage tanks required. Can be installed in corners, on walls and overhead. Saves valuable floor space.
- Installation is simple and inexpensive . . . only ordinary pipe connections are required

PICK MANUFACTURING CO.
WEST BEND, WISCONSIN

Pendleton Woolen Mills
Pick Manufacturing Company,
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Gentlemen
In reply to your letter October 25th, we can say your Pick Instantaneous Water Heater has performed very satisfactory service since it has been installed in our plant.
Very truly yours,
PENDLETON WOOLEN MILLS
J.D. Buchanan
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a very SATISFACTORY PERFORMANCE at Pendleton mills . . .

in daily use at
- BATES MFG. CO.
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- DAN RIVER MILLS
- FIELDCREST MILLS

and scores of others.

WRITE TO DEPT. 145 FOR BOOKLET ON HOW PICK HEATERS CUT COSTS OF HOT WATER.

There's only one basic reason for preferring

ECLIPSE BOBBIN HOLDERS

They produce better fabrics at less cost

Actually, of course, there are many reasons for the superiority of Eclipse Bobbin Holders. Easy installation, reduced maintenance requirements (resulting in substantial savings in labor costs), resistance to rust, durability (some holders in operation for more than ten years) and many, many more. Put them all together, though, and they add up to one basic fact: with Eclipse, you get *better fabrics at lower cost*. And what better reason could there be for the amazing sales increase Eclipse has enjoyed in the past year. The textile industry has discovered that the use of old-fashioned wooden skewers is inefficient and costly. The modern way to spin yarn is with Eclipse Bobbin Holders. Our increased plant capacity now assures you of prompt delivery. Write or call Eclipse Machine Division today.

ECLIPSE MACHINE DIVISION ELMIRA NEW YORK Bendix AVIATION CORPORATION

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Cuts Production Cost

on Mens', Womens' Sweaters

● High-speed, trouble-free operation assured by simplicity of design, sound engineering, precision unit-construction of all sub-assemblies. Wide operating range, new refinements, increase production up to 20%

● Versatile! Handles synthetics, worsteds, zephyr, cashmere yarns, etc. Stitch construction includes interlock, rib, jersey which can be incorporated with tuck and welt stitches and (on interlock fabric) fancy stitches embodying stripes, colored checks, blister, grenadine; also pleat effects and jersey interlock. Our big backlog of orders proves preference for OGA and OTA equipment—makes it necessary to place your orders several months ahead of wanted delivery date! Write at once!

ORDNANCE machines are available in 18", 20", 22" and 24" with 8 feeds; in 30" and 32" with 12 feeds.
To meet todays demand for JERSEY fabrics let us demonstrate our OTSA model, embodying many new exclusive features!

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OTSA OGA OTA ORDNANCE GAUGE CIRCULAR, FULLY AUTOMATIC KNITTING MACHINES

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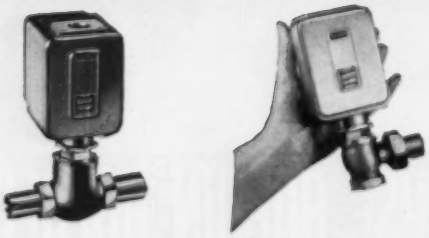
BARBER COLMAN

COMPACT ELECTRIC VALVE

Better control . . . electrically!



- Motor factory-sealed in an oil-filled case — lubricated for life.
- Positive closure—operator force seats valve. Not dependent on line pressure to close.
- Ideal for spray nozzles — and other textile plant applications. For water, steam, or air.
- Only two connecting wires. So easy to install.

NEW BULLETIN F-6801 now available. Consult nearby Field Office, or write

Barber-Colman Company

Dept. K, 1341 Rock Street Rockford, Illinois, U. S. A.

15x36 or 42 ins.; for 18-gauge frames, cans are 16 or 17x36 or 42 ins. Cans hold from 28 to 40 lbs. of stock. (G-249)

SPINNING, TWISTING, WINDING

CONTINUED FROM PAGE 105

Unit Collection Box

Four discharge covers for unit collection boxes were shown by Pneumafil Corp., Charlotte, N. C. The boxes discharge at the top, bottom, top and bottom, or all the way around.

Features include 50% more storage capacity, self-contained turbo fan-and-motor assembly, cast-aluminum-alloy end shields, double-access vacuum-sealed doors, and a heavy-duty motor. The unit can be converted to the central-air type of collector in minutes. (G-250)

WARPING, SLASHING, WEAVING

CONTINUED FROM PAGE 111

Warp-Tying Machines

Warp-tying machines were shown by Edda International Corp., Greenville, S. C., and New York, N. Y.

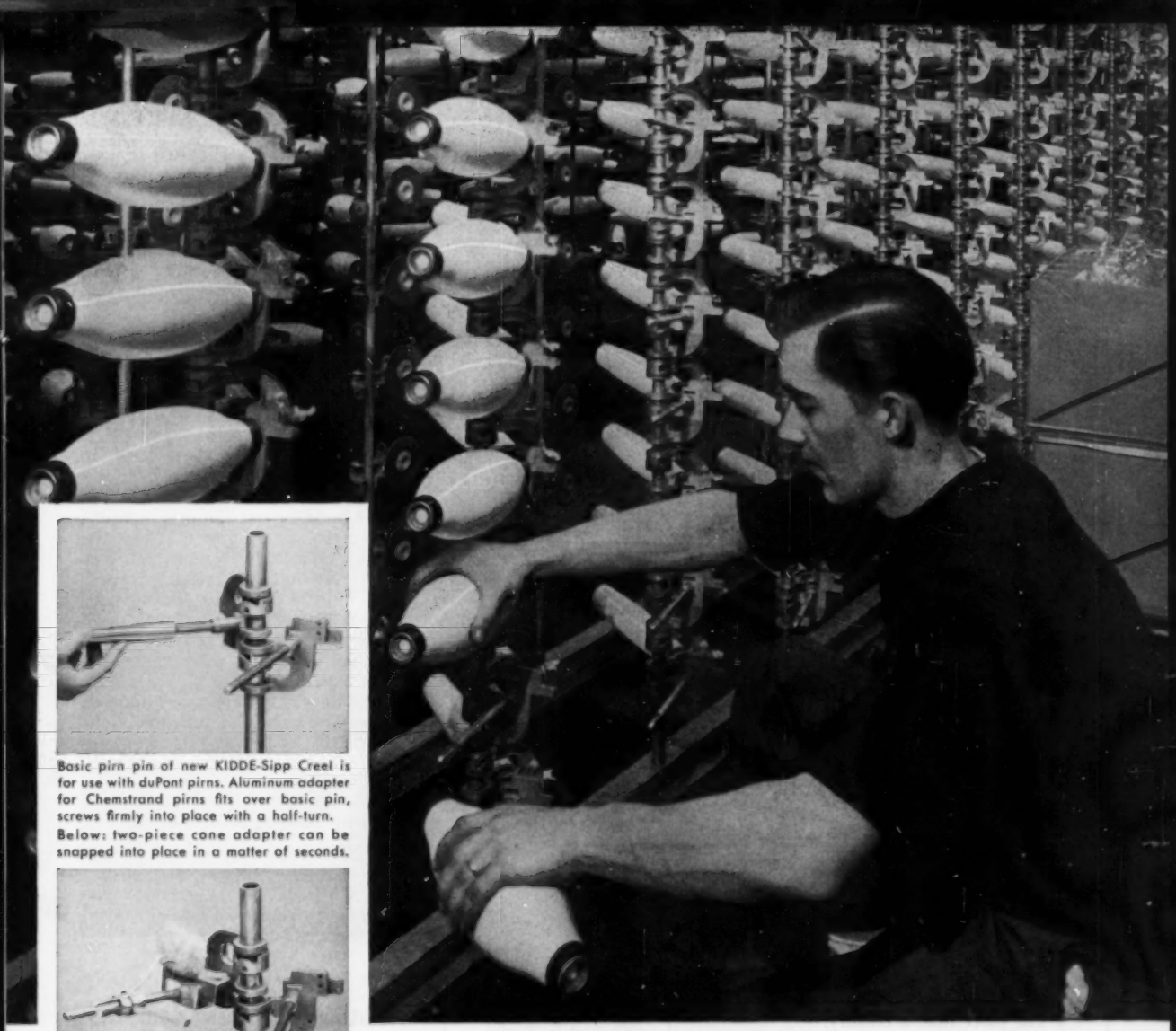
The machines had the following improvements: (1) Modified thread guides for positive thread selection, (2) stripper-wheel disk to eliminate thread build-up, and (3) spring-loaded stripper shields to prevent rolled ends.

With the improvements on two models, an end-to-end lease from the drop wires is tied with a selector to an unleased warp (flat sheet on the new beam) on cotton and other spun yarns.

Both models can be changed quickly to tie leased-to-flat, leased-to-leased, or flat-to-flat warps, depending on the yarns or fibers to be tied.

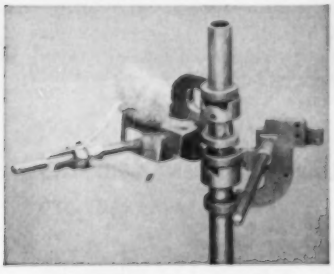
The third model is only for tying unleased warps, where either light-sley warps or heavy yarn numbers are woven.

All three models come with tying frames for any width of warp up to 120 ins., and they tie all widths in one-bite operation. (G-251)



Basic pirn pin of new KIDDE-Sipp Creel is for use with duPont pirns. Aluminum adapter for Chemstrand pirns fits over basic pin, screws firmly into place with a half-turn.

Below: two-piece cone adapter can be snapped into place in a matter of seconds.



Starting Point for Good Warps

NEW, IMPROVED KIDDE-SIPP CREEL

To help you make better warps . . . and to make your warping more versatile, KIDDE-Sipp creels have been completely redesigned. Package holder arms are much stronger. Adapters are more rigid. Even the heaviest packages will not sag out of alignment.

Basic creels are fitted with pirn holders for the 12" duPont pirn. Adapters for Chemstrand pirns, or for cones, spools and tubes can be added and fastened securely. Change-overs are easy and quick.

The new creels have plated pins with aluminum arms and adapters. Painting is eliminated . . . no rust can get on your yarn.

KIDDE-Sipp creels are available with inside, outside or vertical yarn delivery . . . with washer, post, or pulley tensions and with Kidde tension compensators. All are available with stop motions and with annunciator lights if desired. Write for further information to . . .

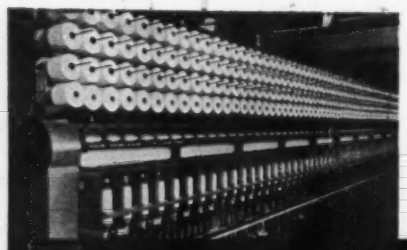
TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS
BEAMERS • CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS

Kidde

MANUFACTURING CO., INC. — 42 FARRAND STREET — BLOOMFIELD, NEW JERSEY

SOUTHERN OFFICE — 267 W. MAIN ST., GASTONIA, N. C.

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.



Tops for Cotton Tire Cord Paper

COLLINS Big Ring Twisters =

Big Packages Clean Knotless Yarn at Higher Speed ...Low Cost

Collins Big Ring Twisters produce 4 to 12 lb. packages of exceptionally clean knotless yarns, when employing a 6 to 8 in. ring size.

High Speeds are possible because Collins Big Ring Twisters are equipped with large diameter pulleys, anti-friction idlers, ball bearing front roller stands, large diameter feed rolls, and roller bearing spindles.

Low Cost is achieved through increased twisting and winding efficiency. *Quality* is inherent in big packages of knotless yarns. Write for full information on Collins Big Ring Twisters and Collins convenient financing plan.

COLLINS BROTHERS MACHINE COMPANY
647 Roosevelt Ave., Pawtucket, R. I., Est. 1866
CHARLOTTE • CHICAGO • TORONTO

There is a Collins Twister for Every Ply Yarn Construction

ELEVATED STEEL TANKS

• For more than a century, COLE elevated tanks have been helping provide fire protection and adequate water reserve for the textile industry.

Capacities from 5,000 to 2,000,000 gallons—and covering designs ranging from standard hemispherical self-supporting bottom to spherical tank on tubular tower. Send us your inquiry, stating capacity, height to bottom and location. Write for *Tank Talks*.

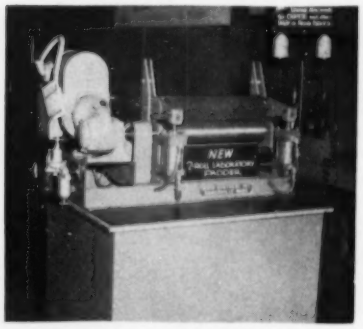
Elevated Tanks, Pressure Vessels, Chemical and Processing Equipment from Aluminum, Stainless and Carbon Steel, Monel and Other Alloys.

R. D. COLE MANUFACTURING CO. COLE NEWNAN, GEORGIA

R. D. COLE MANUFACTURING CO. NEWNAN, GA.

BLEACHING, DYEING, FINISHING, CLOTH ROOM

CONTINUED FROM PAGE 113



Laboratory Pad

A laboratory pad featuring a built-in variable-speed drive, pneumatic loading, and a two-position tank was shown by Birch Bros., Inc., Somerville, Mass. Let-off and take-up bars are provided. The tank can be positioned so that the lower roll is partially immersed or can be kept free of the solutions being used.

A loading of 100 lbs. across the fan of the 4-in. rolls duplicates the effect of a 400-lb. loading on full-size 18-in. rolls. (G-252)

Railway Sewing Machine

A 20-ft. heavy-duty railway sewing machine was shown by Birch Bros. Inc., Somerville, Mass. The unit was designed especially for sewing heavy carpetings. (G-253)

AUXILIARY EQUIPMENT & SUPPLIES

CONTINUED FROM PAGE 120

Nonmarking Caster

Atlasit, a nonmarking rubber-fiber wheel, was shown by Bassick Co., Bridgeport, Conn. The wheel has roller bearings and is made from 3 to 8 ins. in diameter. A large aluminum-bodied caster that is completely sealed to prevent grease dripping from the bearing and to prevent moisture and lint entering the bearing was also shown. (G-254)

Remote-Weight Scale

A scale that can be connected electronically to an adding machine located in a remote place was shown by Toledo Scale Co., Toledo, Ohio. Weight data are listed on the adding-machine tape automatically and can be totaled when desired. Disconnected from the adding machine, the scale is used in the normal manner. (G-255)

AFTER TEN YEARS: TOP PERFORMANCE . . . VIRTUALLY NO MAINTENANCE COSTS

Yarn production costs go down when spindle performance stays high. Recent surveys demonstrate that Marquette Anti-Friction Bearing Spindles stand up through long service and continuous operation. In the mill shown above, replacement and repairs averaged less than a penny per spindle over a ten-year period.

Marquette Anti-Friction Spindles, for all textiles, have an exclusive full-floating footstep bearing. We'll be glad to arrange for a test demonstration in *your* mill to prove that they will produce *more yarn* at *lower cost.*

Representatives: WILLIAM P. RUSSELL, BOX 778, ATLANTA, GA.
C. H. WHITE, MOUNT HOLLY RD., ROUTE 6, CHARLOTTE, N. C.
R. MICHAEL TURNER, 100 CHESTNUT STREET, CLINTON, S. C.

MARQUETTE METAL PRODUCTS DIVISION
CURTISS-WRIGHT
CORPORATION • CLEVELAND 10, OHIO

Other Marquette Products: SPRING CLUTCHES
HYDRAULIC GOVERNORS • AIRCRAFT WINDSHIELD WIPERS
ROTARY OIL PUMPS • PRECISION PARTS AND ASSEMBLIES

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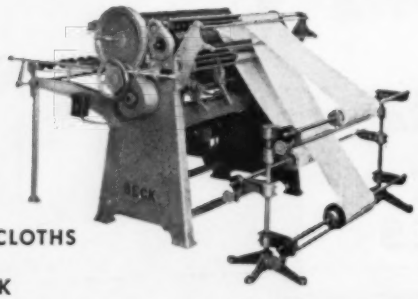
Cuts any textile from rolls to sheets . . . automatically



- TOWELLING
- PILLOW CASES
- DIAPERS
- WIPING CLOTHS
- DUCK
- CANVAS

Fast low-cost cutting—quick sheet-size changeover —reduced waste! These advantages are yours with the Beck Automatic roll sheet cutter. Easy to set-up. Simple to operate. Cuts just about any textile or synthetic. Write for illustrated catalog.

CHARLES BECK MACHINE CORPORATION
50 CHURCH ROAD, KING OF PRUSSIA, PA.

Pacemakers since 1864 in the ENGINEERED APPLICATION of Sheet Cutters and Slitters

picture from plant of LUISA SPAGNOLI Perugia, Italy —one of our foreign users

TOMPKINS

over 110 years' proven performance—
LATCH AND SPRING NEEDLE KNITTING MACHINES

"mostest runnin' knittin' machines in the plant!"

The Head Knitter of an U. S. mill made this brief yet factual statement. Knitters in the know are quick to substantiate the comment, with good reason. The Tompkins record stands undisputed . . . over 110 years of proven money-makers to the Knitting Industry.

We see some Tompkins machines running that are 70 years old — still going strong despite their outdated performance in comparison with new model Tompkins machines. It's like seeing an old Model T alongside a new '56 Ford! Let us help you put in a modernization plan.

— ESTABLISHED 1864 —

TOMPKINS BROS. CO.
623 Oneida St. • Syracuse 4, N. Y.

TOMPKINS
MODERN SPRING NEEDLE
KNITTING MACHINE

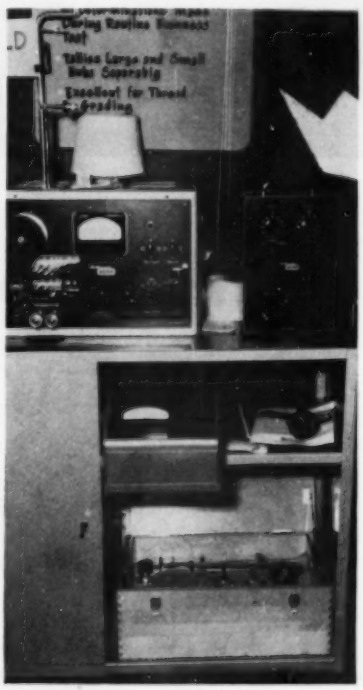
with changeable feeds to make
• Fleece Coatings • Sweat Shirts
• Jersey • Terry • Patterns
• Stripes • Lastex Inlay
—all on the same machine!

TESTING EQUIPMENT

CONTINUED FROM PAGE 121

Yarn-Defect Analyzer

A portable yarn-defect analyzer, shown by Lindly & Co., Inc., Mineola, N. Y., automatically counts neps, slubs, knots, fluff balls, and broken filaments in yarn. Yarn is run at speeds up to 600 yds. per min. between two units of a photoelectric system. The device can be adjusted to a fine sensitivity and can be made to stop at each defect. (G-256)



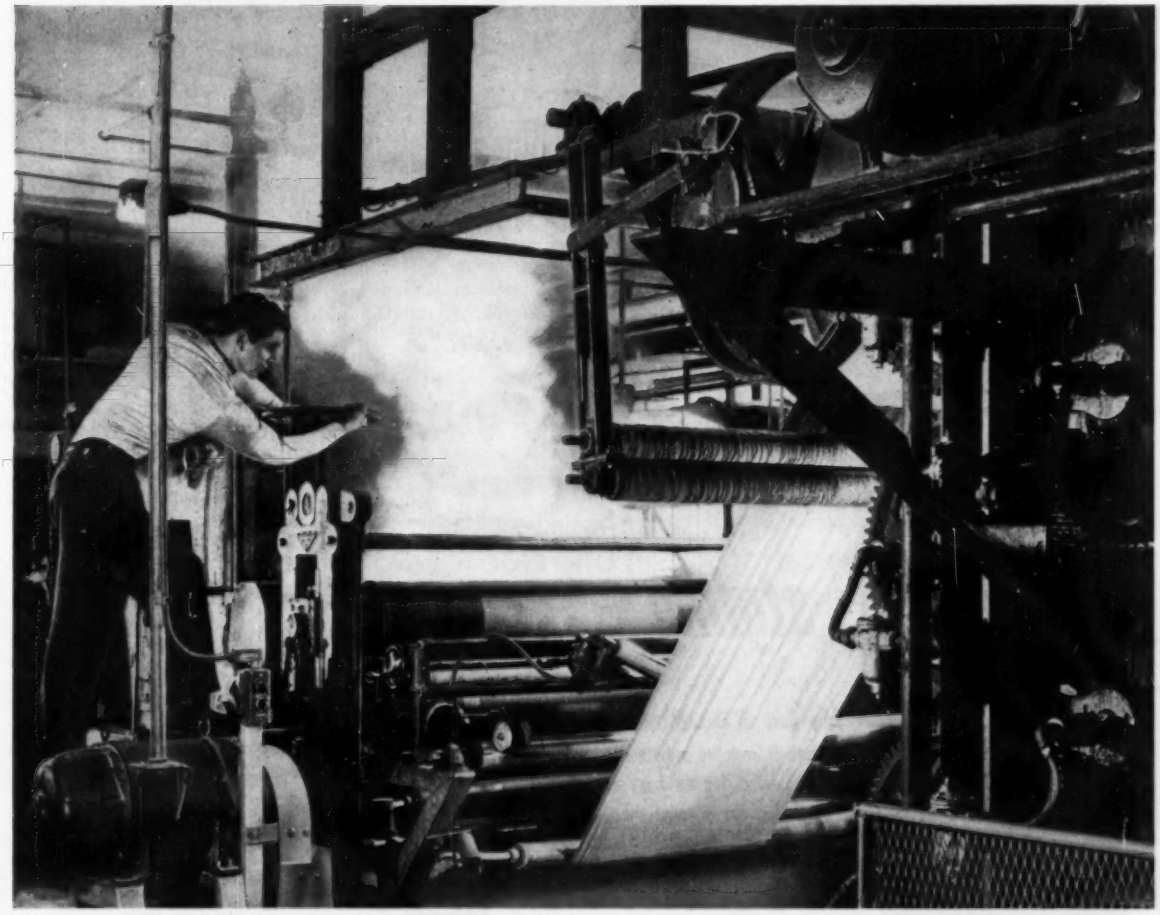
Imperfection Counter

The Hy-Lo indicator (arrow) used to grade yarns to ASTM standards of appearance was exhibited by Uster Corp., Charlotte, N. C. The indicator tallies large and small nubs separately

Textile Notes on Corn Products

For economy in your finishing operation use a

GLOBE® PEARL STARCH



Operators choose Globe Pearl Starches for the economy that results from extra coverage.

Whether for the thick starch paste necessary in back filling, the carrier in printing or the starch for mangle work, there is a Globe Starch just right for the work.

These thick-boiling starches provide the extra coverage that means more economical production. Pastes and sizes made from Globe Pearl resist the effects of pumping and cooking without losing viscosity.

Consistently reliable, Globe Pearl Starches are uniform. Their ready availability have made them the favorite choice of many mills.

Ask the man from Corn Products. Ready to assist you in any way, he has at his disposal the most complete laboratory and technical facilities in the industry. The man from Corn Products can also provide engineering service for the installation of bulk-handling equipment. Write or phone for information, there is no obligation.

1906 • **50th ANNIVERSARY** • 1956
CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York 4, N. Y.

Corn Products makes these famous starches for the textile industry—
Eagle • Foxhead • Globe • Hercules • Ten-O-Film • Globe Dextrines & Gums

For more data, write this page number on Reader-Service card. →

The Dodenhoff Hydraulic Checkmaster*

Increases Loom Speeds 10%

Improves Wearing Quality

Cuts Weavers and Loom Fixers Work Load

The Dodenhoff Checkmaster provides a smooth, positive, constant and accurate check of the shuttle on every pick—in both directions without constant adjustments to box and check straps. It stops kinky fillings and produces even selvage. Gives top performance on the first pick Monday morning.

You'll get higher loom speeds and better quality weaving at lower cost with the Dodenhoff Hydraulic Checkmaster. Order a section today.

*Patented

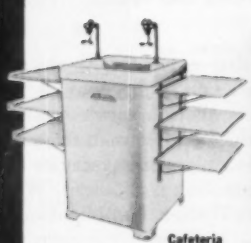
W. D. DODENHOFF CO.
INCORPORATED
GREENVILLE, SOUTH CAROLINA

...selection ...styling ...safety!

Coolers with Stainless Steel or Vitreous China Tops

It's easy to choose the right cooler or fountain from the complete Halsey Taylor line. Coolers for the busy executive, for cafeterias, for office or shop, for remote installations. Fountains—wall-types or pedestals. Ask for latest catalog.
The Halsey W. Taylor Co., Warren, Ohio.

Pedestal or Wall Fountains



Cafeteria Cooler

Remote Type

Compartment Type

HALSEY® TAYLOR

Fountains • Coolers

TW-63

and has an additional setting to check other imperfections. All determinations are made while routine evenness tests are being run. (G-257)

Tension Analyzer

Brush Electronics Co., Cleveland, Ohio, showed two tension analyzers. One analyzer was testing shuttles for correct tension to set the nylon loops and to adjust the fur. Yarn is run from the shuttle through the eye over the tension-analyzer pulleys to pick up the variation and record it on a chart.

The second analyzer was shown measuring the tension on the cotton warp on a Draper X-2 loom. The results from the tests are used to set adjustments on whiprolls and drop wires. (G-258)

Miniature Varimeter

A miniature Varimeter for comber ribbon laps and narrow felt fabrics was shown by Uster Corp., Charlotte, N. C. The instrument works in the same manner as the standard Uster Varimeter measuring head used on picker laps. (G-259)

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 184

give greater stability at high speeds where heat and expansion are important.

The machine knits most man-made fibers and fine cotton yarns for fabrics used in blouses, shirts, dresses, sheets, curtains, hats, gloves, and ties. Stable fabrics for dress prints, upholstery, and industrial purposes can also be made.

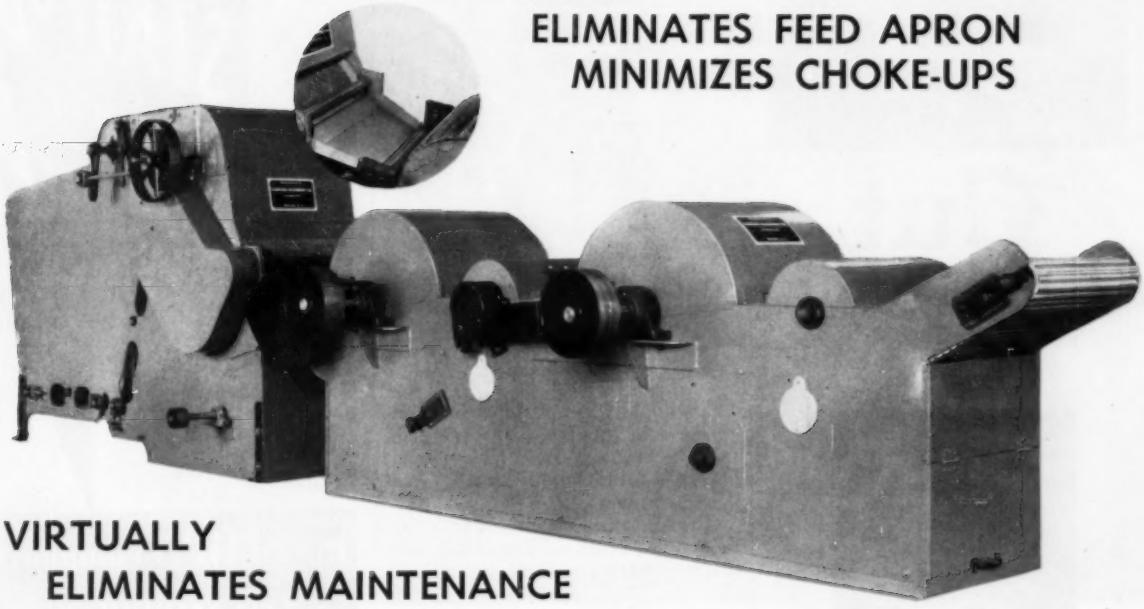
These are the production figures when the machine runs at 1,250 courses per minute:

Nylon underwear—24 yds. per hr.
Rayon charmeuse—35 yds. per hr.
Terylene or Dacron shirting—34 yds. per hr.

Circle T-22 on Reader-Service Card

CMC WASTE MACHINE WITH FEEDER

ELIMINATES FEED APRON
MINIMIZES CHOKE-UPS



VIRTUALLY
ELIMINATES MAINTENANCE

1— THE CMC WASTE FEEDER ELIMINATES THE FEED APRON, PUTS THE STOCK INTO A BATT WHICH GOES INTO THE WASTE MACHINE ROLLS GIVING AN EVEN FEED, THEREBY INCREASING THE EFECTIVENESS OF THE WASTE MACHINE WITH LESS FIBER DAMAGE.

2— THIS EVEN FEEDING VIRTUALLY ELIMINATES YOUR WASTE MACHINE MAINTENANCE PROBLEMS.

3— THE CMC WASTE FEEDER MINIMIZES CHOKE-UPS AND PRODUCTION CAN BE INCREASED AS REQUIRED.

CMC WASTE MACHINE FEATURES

BEATERS
30" diameter, ball-bearing equipped, covered with hardwood lags, perfectly balanced, with uniformly spaced and sized heat-treated steel pins.

APRONS
Hardwood slats or heavy leather belting...canvas backed. Aprons are easily adjusted to maintain proper tension.

DRIVE
We can furnish tight or loose pulleys or 5V pulley for motor drive.

FEED ROLLS
First beater: Four firm-gripping, reversible 2" fluted steel rolls; kept under heavy tension by a double set of heavy springs. **Other cylinders:** Two fluted feed rolls each.

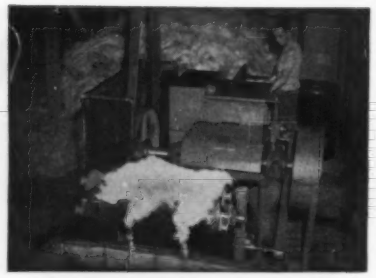
FRAMEWORK
½" plate steel sides, heavy cross-braced. Edges and corners ground and fitted. Remarkably sturdy.

CAPACITY
Standard capacity (2 beater model) is from 800 to 1,200 pounds per day but this can be stepped up if needed.

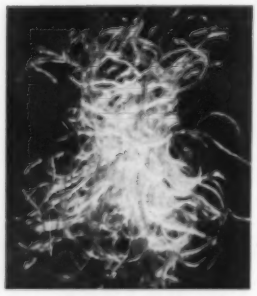
CAROLINA MACHINERY COMPANY, Inc.

5019 Wilkinson Boulevard • P. O. Box 1922 • Charlotte 1, North Carolina

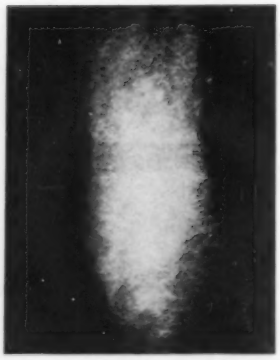
For more data, write this page number on Reader-Service card. →



Cut
THREAD WASTE
LIKE THIS



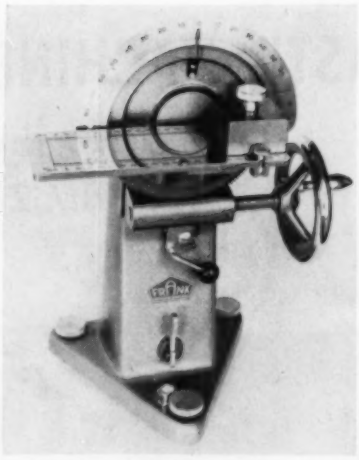
MAKE FIBRE
LIKE THIS



With a Taylor-Stiles thread waste cutter you can cut all kinds of tangled and mixed length thread waste, and after opening the cut yarn you will have a fine fibre for further processing.

Write for illustrated folder showing Taylor-Stiles thread waste cutters and describing the principles on which they operate.

TAYLOR-STILES
& Company
15 Bridge Street Riegelsville, N. J.



Stiffness Tester

A stiffness tester that has been engineered to produce duplicatable results has been developed by Karl Frank GmbH, Weinheim-Birkenau, Weinheim, Germany.

The test board accommodates a fabric sample 300x50 millimeters. Behind the test board is a graduated scale so that the angle of recovery can be noted.

In operation, a sample is mounted on the test board and folded in half, and a 1 kg. weight is positioned exactly over the folded area. After 1 min., the weight is removed and the free end of the sample is allowed to spring up. An immediate reading of the angle of recovery can be taken from the scale mounted behind the test board.

By tilting the test board, the free end of the sample may be caused to fall past center; and the angle at which this action occurs can be noted on the scale.

Circle T-23 on Reader-Service Card

Rubber-Belt Shrinking Range

A complete shrinking range consisting of a tension-control unit, cloth conditioner, clip expander, rubber-belt shrinking unit, and a finishing section has been announced by Cook-P & N Machine Co., 365 Dorchester Ave., Boston 27, Mass. Improvements in the shrinking unit, simplified drive, and a new cooling section are featured in the range.

Circle T-24 on Reader-Service Card

Circular Knitting Machine

An electronically controlled circular knitting machine made by Jumberca, Santa Maria 13, Barcelona, Spain, has

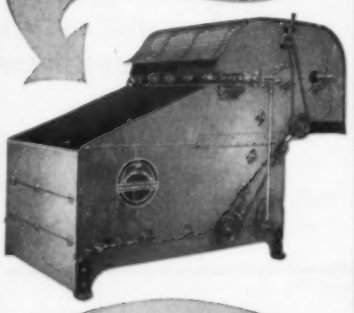
CONTINUED TO PAGE 246

STATIC

Now there is a *guaranteed* means for its elimination! The SIMCO *"Midget"* is guaranteed to be the most effective neutralizer available. There is a static bar designed for every textile application, and for every material . . . including new *shockless* bars. Equip your machinery now!

the SIMCO company
920 Walnut St.
Lansdale, Pa.

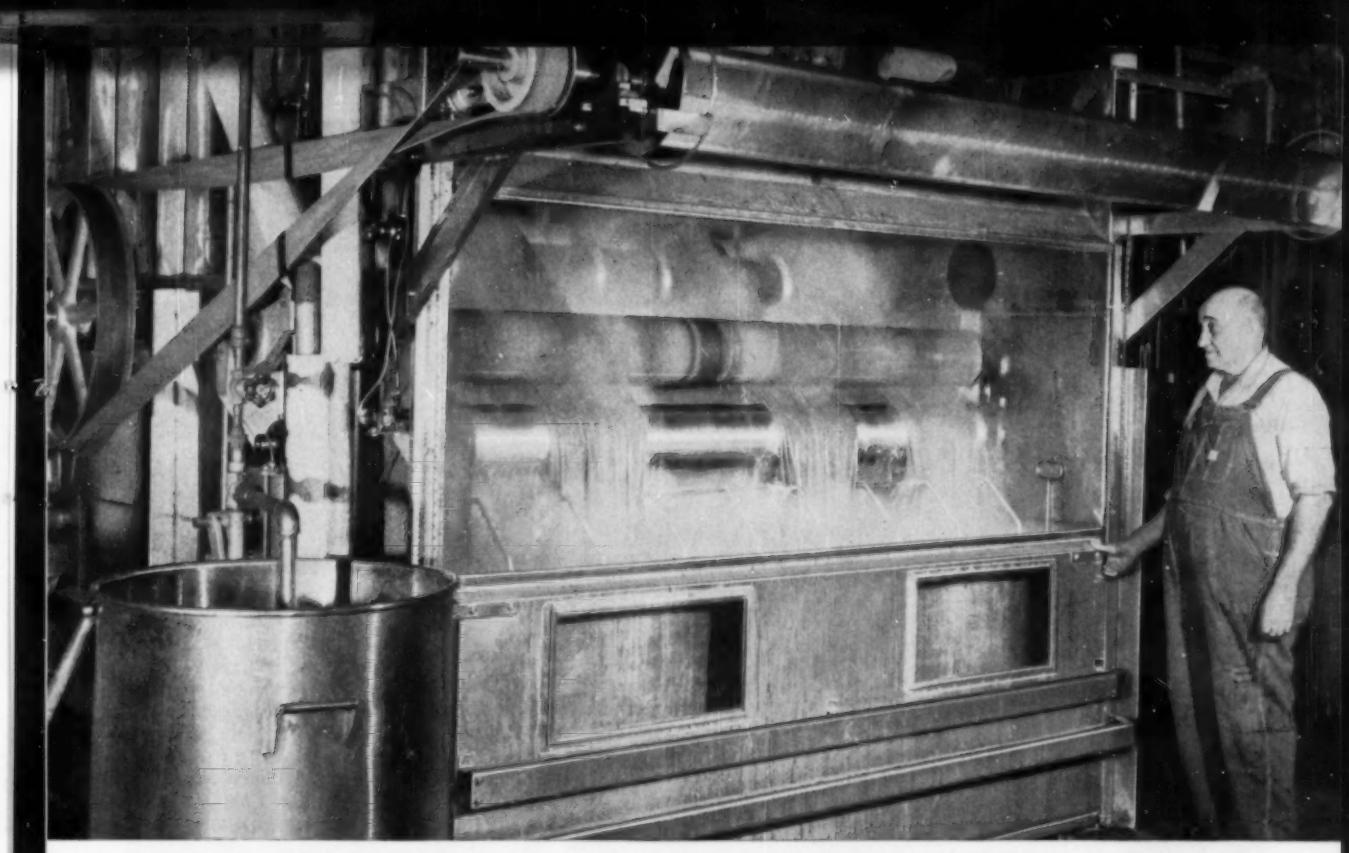
"WHEN YOU THINK OF FEEDERS-



-YOU THINK OF-

HARWOOD"

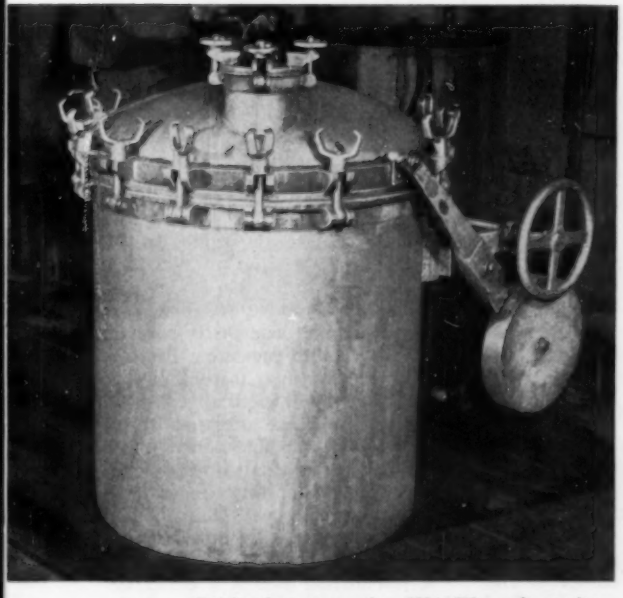
Geo. S. HARWOOD & Son
50 Lagrange St., Worcester 8, Mass.



One of the six Stainless dye kettles. All accessories, like dippers, pails and stock dye kettles, are Stainless.

Clean-up costs cut 50% with Stainless Steel

AT CLINTON WOOLEN MFG. COMPANY
CLINTON, MICHIGAN



Stainless dye vats range from 100 to 500 pounds capacity. Wool is placed in Stainless baskets for dyeing.

IN the middle of the 19th century, Clinton was organized by a group of farmers and businessmen to provide the services of a local woolen mill in the area. It was incorporated right after the Civil War, and, although it is not a large mill, it has a big reputation for quality goods—mostly automobile upholstery, uniform cloth and clothing fabrics.

When Stainless Steel dye vats were installed to replace the old wooden vats, three men were able to do the job that formerly occupied eight. But the big savings was on clean-up time. The old vats had to be boiled out when color was changed. The Stainless vats are simply drained and rinsed.

According to N. F. Haas, Secretary of the Company, "It would be easy to contaminate today's delicate colors, but there is no danger of this with Stainless Steel. It's the only metal to use."

Only Stainless Steel *combines* so many valuable properties: corrosion resistance, cleanability, surface smoothness, strength. Think of Stainless when you plan. Think of *USS* Stainless when you buy.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS STAINLESS STEEL

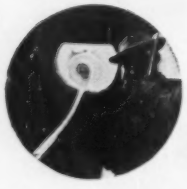
SHEETS • STRIP • PLATES • BARS • BILLETS • PIPE • TUBES • WIRE • SPECIAL SECTIONS 6-2811

UNITED STATES STEEL

Ask these questions, too, when you judge a fluorescent lamp...

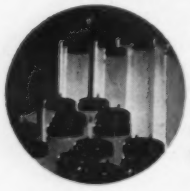
Is your investment protected?

Check Westinghouse Fluorescent Lamps against any other brands you are now using. Check them for maintained brightness, long life, uniform appearance. If you are not entirely satisfied on all counts, your full purchase price will be refunded.



Is it built with tailored glass?

Quality of glass in a fluorescent lamp directly affects lamp performance. Westinghouse makes all of its own fluorescent lamp glass, tailoring it from silica to finished tubing specifically for fluorescent service.



Is it the correct type, size and color for the lighting job to be done?

In the Westinghouse fluorescent family of 290 different lamps—including Slimline and Rapid Start—there's a type and size precisely right for every office, plant and merchandising application. Colors include seven different shades of "white" alone.

For the full story on how to get more for your money in fluorescent light, contact your Westinghouse Lamp Representative.

WATCH WESTINGHOUSE

*WHERE **BIG** THINGS ARE HAPPENING FOR **YOU!***

MILL MAINTENANCE

What You Should Know About Industrial Trucks

When you're buying a powered industrial truck (fork, platform, or tractor unit), performance and cost are the most important considerations. Construction is next most important.

The following tips on drive mechanisms will help you judge engineering design. Of all construction features, the axle is probably the most important single component. It converts the energy received from the power source (electric motor or gasoline engine) into torque, which is the force that drives the wheels.

You Need High Torque

Torque is the twisting force exerted by a rotary force through its radial distance. For an industrial truck, the torque needed varies with the tractive effort, which depends on the combined weight of the truck, the load, and the maximum grade.

A heavy load and a steep grade cut a truck's operating speed drastically and require a high torque. Starting a truck also requires high torque. And because an industrial truck needs both high torque and a slow speed at the driving wheel, a speed-reducing mechanism must be used between the wheel and the motor. A series-wound motor will give you high-starting torque.

You Have To Reduce Speed

You can get the necessary speed reduction by worm gearing. It's quiet and simple, but it's inefficient (70% or even lower) under heavy loads and slow speeds.

Internal gearing is generally used along with bevel-gear reduction and is highly efficient over a wide load and speed range. A second advantage is reduction of torque on the drive shaft and differential. This arrangement is especially desirable on steerable wheel axles because universal joints can be made smaller. But internal gearing is costly, complicated, and difficult to enclose and lubricate.

Spur gearing is also efficient over a wide range of loads and speeds. Its principal disadvantage is that straight spur gearing requires placing the motor parallel to the drive shaft, crosswise of the truck. This position makes inspection and maintenance difficult. This drive is also noisy.

Combination bevel-and-spur gearing permits placing the motor lengthwise of the truck. This drive makes all parts accessible and is efficient over a wide speed and load range. The first reduction, a spiral bevel pinion and gear, is smooth and quiet at high speeds.

The second reduction, with spur gears, runs slowly enough to be quiet. There is no lubrication problem with this combination, and wheel brakes can be used.

Select the Best Axle

Next, you must pick the best drive axle for your work. The dead axle and the plain live axle are obsolete in industrial-truck design.

The semifloating axle is desirable for light trucks and is economical to manufacture; the axle shafts have no driving-gear tooth pressure. Bearings in the axle housing, instead of axle shafts, carry the differential gear.

Axle shafts that are smaller in diameter than the bore of the differential-housing hubs pass through without touching the hubs; therefore a driving connection with the differential bevel gear at the splined ends of the shaft is established.

A full-floating axle is a better design because the outer ends of the driving shafts are relieved of all bending stress just as the inner ends are relieved. Axle tubes extend entirely through the wheel hubs, and wheel bearings are mounted on the outside of these tubes. The axle shafts ex-

how to judge a fluorescent lamp . . . point no. 9

ask about **ELECTRODE QUALITY**

Better electrodes in a fluorescent lamp mean *longer lamp life*. That's why Westinghouse cuts no corners in its electrode manufacture. All Westinghouse electrode coil wire, for example, is drawn through diamond dies. Some of it has to be drawn so fine that a single pound will extend from New York to Pittsburgh. Thanks to constant development of new and better ways to make fluorescent lamp electrodes, Westinghouse has *tripled* the life of its fluorescent lamps since 1948.

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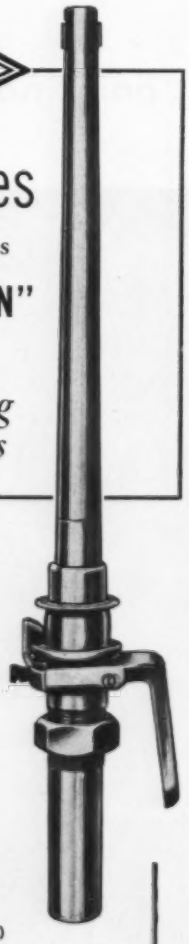

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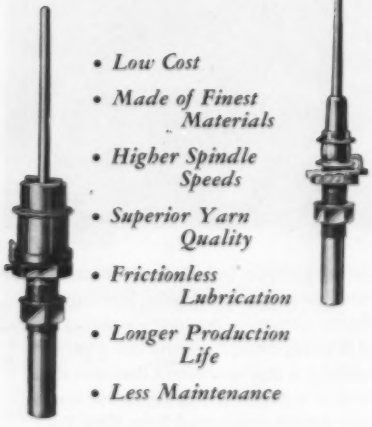

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tend through the housing, and their outer ends connect with wheel hubs through driving dogs or positive clutches.

For heavy-duty service, the full-floating axle is best. With it, the drive shaft can be removed without removing the wheel or axle. A modification of the full-floating design transmits driving torque from shafts to wheels by bolted driving flanges.

Axle mounting is another important feature to check. The drive axle must be attached securely to the frame to absorb the heavy torque reaction in starting, stopping, and climbing grades.

Platform-lift, burden-carrying, and certain tractor units should have steerable-drive axles for good maneuverability. Such an axle has steering-knuckle pivots at the housing ends. The wheels are mounted on the knuckles and are driven through a universal joint. With a single ball-type universal joint, the steering angle is limited to 30°.

You Need Good Brakes

For safe operation, industrial trucks must have powerful dependable brakes. They should be located on the driving axle close to the drive wheels.

Wheel brakes, preferably internal expanding brakes, are best. However, space sometimes does not permit their use; and they cannot be used on trucks with steerable-drive axles. Spring-applied brakes on large fork trucks that go on automatically when the driver leaves the truck are desirable.

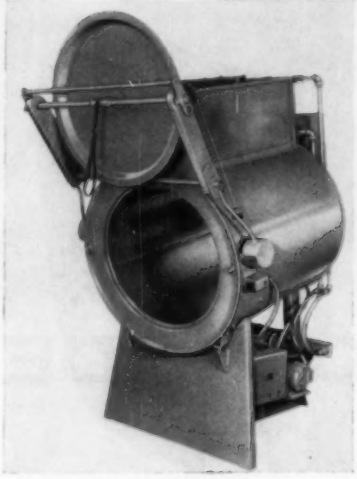
When wheel brakes cannot be used, brakes on the spur pinion shaft are best. This arrangement avoids transmission of braking force through the bevel-gear reduction and gives smoother action than brakes mounted on the motor shaft. *H. E. Milz, Mercury Mfg. Co.*

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 242

24 feeds each with four-color striping attachments. The diameter of the machine is 30 ins. Striping changes are made by perforated tape.

Circle T-25 on Reader-Service Card



Unloading Drying Tumbler

A drying tumbler that can be tilted on its mount and unloaded in 12 secs. has been announced by Huebsch Mfg. Co., Milwaukee, Wis. The cylinder is 42x42 ins., and quick loading is possible through a 34-in. door. The model can be furnished for either steam or gas heat.

Circle T-26 on Reader-Service Card

Storage Cabinets

Steel storage cabinets for storing inventory records, account books, ledgers, and similar materials are available from Standard Pressed Steel Co., Jenkintown, Pa. In the 6½-ft. cabinet, adjustable shelves can be placed as close as 4 ins. apart to allow installation of as many as 16 shelves.

Circle T-27 on Reader-Service Card

Machine Cuts Metals

An abrasive cut-off machine, made by Beaver Pipe Tools, Inc., Warren, Ohio, cuts all shapes and sizes of materials, including aluminum, copper, brass, carbon steel, stainless steel, and ceramics. The No. 4 machine is for bench or stand operation, and the No. 20 machine has its own base.

Circle T-28 on Reader-Service Card

Winch for Fork Truck

A winch attachment for fork trucks is announced by Lewis-Shepard Products, Inc., Watertown, Mass. The winch is for pulling heavy loads out of highway trailers where the fork truck must be kept in a stationary position.

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Masonry Wall Finish

A material that serves as a moisture barrier for above-grade masonry walls is available from Flexrock Co., 3600-G Filbert St., Philadelphia 1, Pa. The odorless, quick-drying, durable, and attractive finish comes in white and eight decorative colors. One gallon covers approximately 300 sq. ft. one coat.

Circle T-30 on Reader-Service Card

Lift Jacks for Platforms

A lift-truck system consisting of a lift jack and engaging bracket and two-wheel platforms is being offered by The Hamilton Caster & Mfg. Co., 1700 Dixie Highway, Hamilton, Ohio. One or more lift jacks can be used in combination with any number skid trucks.

Circle T-31 on Reader-Service Card

Variable-Speed Motors

Completely self-contained, adjustable-speed a.c. motors have been introduced by ACEC Electric Corp., 40 E. 49 St., New York 17, N. Y. The motors give stepless control from 0 to 2,400 rpm. with torque approximately constant at all speeds. Ratings range from ½ to 75 hp. for 220 or 440 v.

Circle T-32 on Reader-Service Card

Heavy-Duty Fans

Heavy-duty fans for duct systems, system boosters, fumes, and smoke have been announced by Chicago Blower Corp., 9869 Pacific Ave., Franklin Park, Ill. Eight models meet all ventilating needs.

Circle T-33 on Reader-Service Card

Conductive Floor Wax

A conductive floor wax to be used wherever static electricity is a danger has been developed by Huntington Laboratories, Huntington, Ill. The wax comes in black and clear and produces a durable water-resistant surface that can be polished to a high luster.

Circle T-34 on Reader-Service Card

Hexagon Steel

Hexagon steel in 3- to 4-in. sizes has been added to the line of steel made by La Salle Steel Co., P. O. Box 6800A, Chicago, Ill.

Circle T-35 on Reader-Service Card

In-Plant Fire Trucks

A complete line of easily maneuverable in-plant fire trucks has been announced by Ansul Chemical Co., Marinette, Wis. The trucks are available in six basic models. The KB8 model features a 300-lb. dry chemical unit connected to a 150-gal. water-fog system. Prices on the six basic units range from $4,453 to $4,878.

Circle T-36 on Reader-Service Card

Truck Has Automatic Gear

An additional series of industrial lift trucks has been added to the line of trucks built by Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia, Pa. This series, KGA51, is equipped with torque transmission and provides fully automatic gear shifting. The results are faster and smoother materials handling with greater operator comfort and safety.

Circle T-37 on Reader-Service Card

Waste-Can Vacuum Tank

A vacuum-tank kit, made by Premier Co., 755 Woodlawn Ave., St. Paul 1, Minn., is used to convert a 30-gal. waste can to a vacuum cleaner. The tank provides wet or dry vacuum. The unit is easily exchanged between two or more cans and operates with any commercial cleaner.

Circle T-38 on Reader-Service Card

Water Chiller

A water and liquid chiller for air conditioning and industrial applications is announced by American Coils Co., 360 Thomas St., Newark 5, N. J. The chillers are completely enclosed in an insulated cabinet and are available in sizes ranging from 3 to 15 hp. In addition to industrial-cooling applications, the chillers are used to cool drinking water.

Circle T-39 on Reader-Service Card

Air Filter

A dust collector used to collect dust, lint, chips, and fumes is being manufactured by Torit Mfg. Co., 287 Walnut St., St. Paul 2, Minn. The filtered air is recirculated back through the room it's taken from to prevent heat loss during cold weather. The 5-hp. 3,450-rpm. motor pulls 2,100 cu. ft. of air per minute through the collector.

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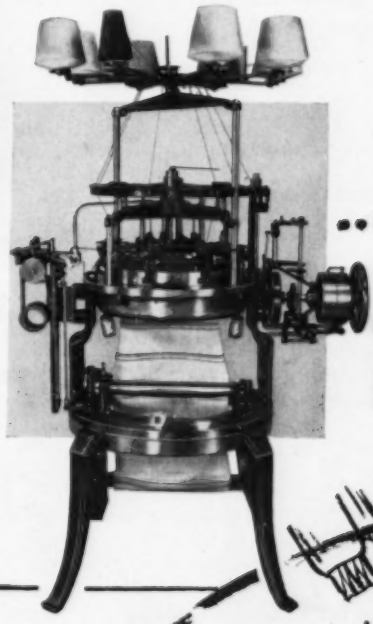

This Wildman Rib Fabric Striping Machine increases production through effecting combinations of a great variety of stitches (one by one or two by two) striped fabric of unlimited patterns — half cardigan, English or Round welt, French or Tubular welt and clearing courses or draw thread.

It works either as a single feed machine, or in any combination of feeds producing fabrics for cuffs, collarettes, sweater bottoms, underwear, outerwear, sportswear and beach wear.

Belt or individual motor drive — to fit your needs.

Investigate this most adaptable, flexible and versatile Wildman Rib Fabric Striping Machine today.

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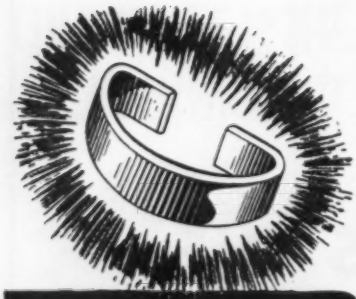

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JAMES H. CARVER, BOX 22, RUTHERFORDTON, N. C.
CRAWFORD JACK RHYMER, BOX 2261, GREENVILLE, S.C.

Correspondence Aid

A technique for handling intercompany correspondence has been announced by Remington Rand, 315 Fourth Ave., New York 10, N. Y. Called Foto-Notes, it utilizes Remington-Rand's transcopy unit and provides a print of an original letter with the answer written on it.

Circle T-41 on Reader-Service Card

Phillips Screwdriver Set

A set of Phillips screwdrivers for turning hardened self-tapping screws is available from Snap-On Tools Corp., Kenosha, Wis. The screwdriver blades are specially hardened so that they do not wear in driving the self-tapping screws. The screwdrivers are available in the following sizes: blade lengths, 1 to 6 ins.; diameter, 3/16 to $\frac{3}{8}$ in.; and over-all length, $2\frac{3}{4}$ to $10\frac{3}{4}$ ins.

Circle T-42 on Reader-Service Card

Parts Pans

Parts pans made from heavy-gauge steel are offered by A. O. Pfister Co., 25,000 Lakeland Blvd., Cleveland 32, Ohio. The pans are available in four sizes and are used for storing parts in racks, washing, processing, and degreasing.

Circle T-43 on Reader-Service Card

Industrial Vacuum Cleaner

An explosionproof industrial vacuum cleaner, H-500, has been introduced by Multi-Clean Products, St. Paul, Minn. The unit is for wet or dry cleaning. It is mounted on four swivel casters and has a 10-ft. flexible aluminum hose. Tank capacity is 10 gals. of liquid or $1\frac{1}{2}$ bus. of dry material.

Circle T-44 on Reader-Service Card

Flexible Hose

A lightweight flexible hose suitable for application with air conditioning, materials handling, ventilating, dust collection, and fume control is being made by The Flexaust Co., 100 Park Ave., New York 17, N. Y. The hose is made in 4- through 12-in. inside diameter.

Circle T-45 on Reader-Service Card

Concrete Bond

An emulsified latex, said to set up an almost indestructible bond between old concrete, metal, and wood surfaces is being manufactured by United Laboratories, Inc., 16,801 Euclid Ave., Cleveland 12, Ohio. The material eliminates the costly preparation work of chipping, drilling, acid-washing, and scarifying to obtain a strong bond. The product may be used indoors or outdoors.

Circle T-46 on Reader-Service Card

Welding Head

A welding head for automatic welding applications employing the inert gas-consumable electrode method is announced by Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y. Argon, carbon dioxide, and helium shielding gases are used with the head. Welding wires of steel, aluminum, bronze, stainless steel, and Strandalloy can be used. Wires from 0.030 in. up can be used.

Circle T-47 on Reader-Service Card

Magnetic Clutch

A permanent magnetic clutch, made in Germany, is available from Locke Machine Co., 971 E. 63rd St., Cleveland 3, Ohio. The clutch is available in the fractional-horsepower range and will be made later in larger sizes. It is particularly useful for air conditioning.

Circle T-48 on Reader-Service Card

Lift Truck

A low-lift platform-type truck equipped with a load-scale attachment is available from Lewis-Shepard Products, Inc., Watertown 72, Mass. With this truck, the operator knows the weight of the load the instant it is picked up. The truck is available in capacities up to 6,000 lbs.

Circle T-49 on Reader-Service Card

Covering for Paving

A pitch emulsion that is insoluble in oils and gasoline, can be quickly applied, and improves and protects the surface of black-top paving has been developed by Maintenance Engineering Co., 16 W. Johnson St., Philadelphia, Pa. The material is available in three colors: charcoal, green, and red.

Circle T-50 on Reader-Service Card

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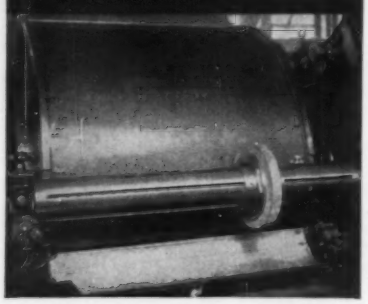

Stop throwing away profits by dismantling and shipping rolls out for grinding.

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Lubricants

Two lubricants, Type 165X and LOEX, have been added to the line of lubricants made by Alpha Molykote Corp., 65 Harvard Ave., Stamford, Conn. Type 165X is an extreme bearing open-gear lubricant. Type LOEX is for extreme low-temperature applications.

Circle T-51 on Reader-Service Card

Magnesium Pallets

A new lightweight pallet dolly made of magnesium has been announced by Magline, Inc., 1900 Mercer St., Pinconning, Mich. The dolly provides maximum strength at minimum weight and can be handled easily by one man. It is available in six standard sizes that weigh from 31 to 42 lbs. Handling capacities are 2,000 to 4,000 lbs.

Circle T-52 on Reader-Service Card

Panel Lubricates Gears

Self-contained panels for spraying lubricants on spur or herringbone gear trains have been developed by Farval Corp., 3249 E. 80th St., Cleveland 4, Ohio. The panels have stainless-steel spray valves with built-in nozzles. A central pumping unit delivers gear lubricant at regular intervals.

Circle T-53 on Reader-Service Card

Packaged Machine Mounts

A convenient package of machinery-mounting material that requires no bolting or cementing is announced by Clark, Cutler, McDermott Co., Franklin, Mass. The unit, called Packaged Flats, consists of one 9x18-in. sheet of the firm's Air-Loc mounting material and one sheet of Air-Loc SL shim-holding material. The package provides enough material to install from one to three machines and costs $11.64 F.O.B. Franklin.

Circle T-54 on Reader-Service Card

Nylon Bearings

Nylon flange bearings to be mounted directly in your housings are being made by Thomson Industries, Inc., Manhasset, N. Y. The flange is provided with slots so that you can slip the bearings on over shafts without disassembling any parts. The bearings are made in 12 sizes ranging from 3/16- to 1¼-in. inside diameter.

Circle T-55 on Reader-Service Card

Pump for Chemicals

A close-coupled portable electric motor and pump unit with dry-suction lift of approximately 15 ft. is available from Jabsco Pump Co., 2031 N. Lincoln St., Burbank, Calif. The pump-motor combination is used to transfer chemicals.

Circle T-56 on Reader-Service Card

Phenolic-Resin Caster

A caster wheel that promises longer life is being made by The Rapids-Standard Co., Inc., 297 Rapistan Bldg., Grand Rapids, Mich. The caster, made from phenolic resin, carries a heavy load easily, protects costly floors and does not mark them, and is nonsparking.

Circle T-57 on Reader-Service Card

Clutch for Engines

A low-cost electric fan-clutch unit for internal combustion engines has been announced by Warner Electric Brake & Clutch Co., Beloit, Wis. Textile applications include portable power units. The system of fan control eliminates power losses and reduces fuel consumption.

Circle T-58 on Reader-Service Card

Variable-Speed Motor

A variable-speed a.c. motor is available in the U. S. from Bogue Electric Mfg. Co., 52 Iowa Ave., Paterson, N. J. The motor is made under a license from Laurence, Scott & Electrometers Ltd., England. The motor is made in horsepower ratings from 0.5 to 1,000.

Circle T-59 on Reader-Service Card

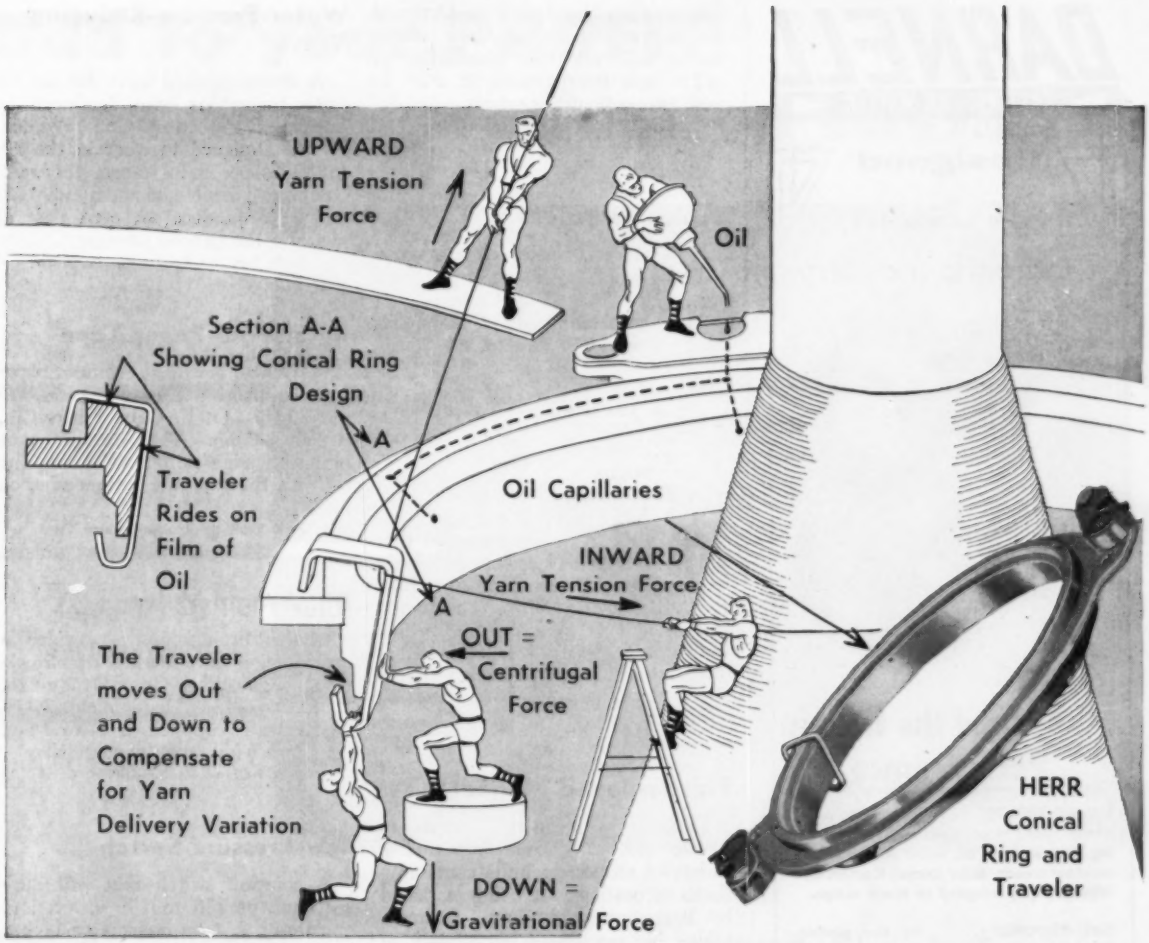
Push-Button Actuators

Designed to be applied to snap-action switches, a new series of push-button actuators has been announced by Minneapolis-Honeywell Regulator Co., Micro Switch Div., Freeport, Ill. The assemblies are particularly suitable for computers and similar machines.

Circle T-60 on Reader-Service Card

Laboratory Air Conditioner

A unit that provides close control of temperature and humidity has been announced by Air Conditioning In-



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The Herr Conical Ring Design equalizes the yarn tension forces (upward and inward) and the Traveler centrifugal and gravitational forces (outward and downward). These opposing forces are balanced and the traveler rides on the ring with minimum frictional contact.

Reservoirs feed oil to the capillary openings. The Traveler distributes this oil to form a microscopic film on which it rides permitting maximum spindle speed with minimum Ring and Traveler wear.

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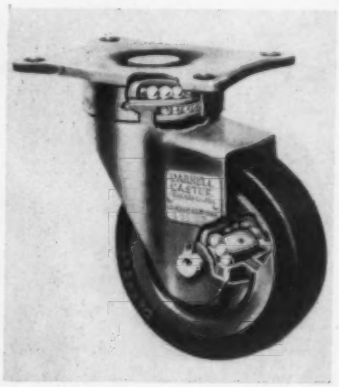

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dustries Co., Houston, Tex. Designed for testing laboratories, the conditioner will maintain humidities at ±2% and temperatures at ±2° F. with proportioning controls.

Circle T-61 on Reader-Service Card

Explosive Valves

Valves that open or close when a built-in explosive charge is triggered are being marketed by Conax Corp., 7811 Sheridan Drive, Buffalo 11, N. Y. The valves are used for storage of gases or liquids under high pressure.

Circle T-62 on Reader-Service Card

Tube Expander

An air-operated tube expander that provides control of torque has been marketed by Thomas C. Wilson, Inc., Long Island City, N. Y. The torque is read directly in foot-pounds. The tool will produce 14 foot-pounds at 90-lbs.-per-sq.-in. air pressure.

Circle T-63 on Reader-Service Card

Plastic-Bound Magnets

Permanent magnets bound in plastic that can be formed into a variety of shapes, or units containing shafts or bearings, are being marketed by Baermann-Nord Corp., Amherst, Ohio. No machining is necessary to produce magnet systems of high magnetic characteristics.

Circle T-64 on Reader-Service Card

Hydraulic Cylinders

Logansport Machine Co., Logansport, Ind., has announced a line of hydraulic cylinders for heavy duty. The units are nonrotating, double-acting, and are supplied in bores from 2 to 6 ins. to operate at 150 to 500 lbs. per sq. in.

Circle T-65 on Reader-Service Card

Plastic Filter Pumps

All-plastic self-priming filter pumps made from a variety of materials have been announced by Sethco Mfg. Co., 70-78 Willoughby St., Brooklyn 1, N. Y. The pumps are available in capacities of 50 to 200 gals. per hr. Filters are available in cotton, Dynel, porous stone, or porous carbon, to handle a variety of corrosive materials.

Circle T-66 on Reader-Service Card

Water-Pressure-Reducing Valve

A direct-operated valve for use on water mains has been developed by Spence Engineering Co., Walden, N. Y. Designed to work in the 30- to 80-lbs.-per-sq.-in. range, the valve combines a diaphragm and a heavy coil spring to produce an even flow of water at the desired pressure.

Circle T-67 on Reader-Service Card

Reinforced Paper Tape

Glass fiber is used to reinforce paper tape to make a sealing material offered by L. O. F. Glass Fibers Co., Toledo, Ohio. The stronger tape permits sealing cartons with only one tape on the top and bottom of each carton.

Circle T-68 on Reader-Service Card

Diaphragm Valve

Straight-through flow is provided in a diaphragm valve marketed by Stockdale Engineering Co., Dept. 118, P. O. Box 144, Haddonfield, N. J. The valve is supplied in ¼- to 14-in. sizes in a wide range of materials.

Circle T-69 on Reader-Service Card

Low-Pressure Switch

A compact switch that will carry 15 amps. at 120 to 150 v. a.c. and operate on a static pressure of 1½ ins. has been announced by Henry G. Dietz Co., 12-16 Astoria Blvd., Long Island City 2, N. Y. The switch is designed to be used where space is limited.

Circle T-70 on Reader-Service Card

Liquid-Level Control

A probe-type control that can be adjusted to suit the resistivity of a variety of liquids has been announced by Machinery Electrification, Inc., Northboro, Mass. The control is supplied to operate on 115 to 130 v. with probe voltage of 12.5 v. and can be set for pump-up, pump-down, or constant-level service.

Circle T-71 on Reader-Service Card

Floor-Repair Material

A product that will repair cracks or holes in concrete floors has been marketed by Stonhard Co., 1306 Spring Garden St., Philadelphia, Pa. The material requires only 40 mins. to set before traffic can be resumed.

Circle T-72 on Reader-Service Card

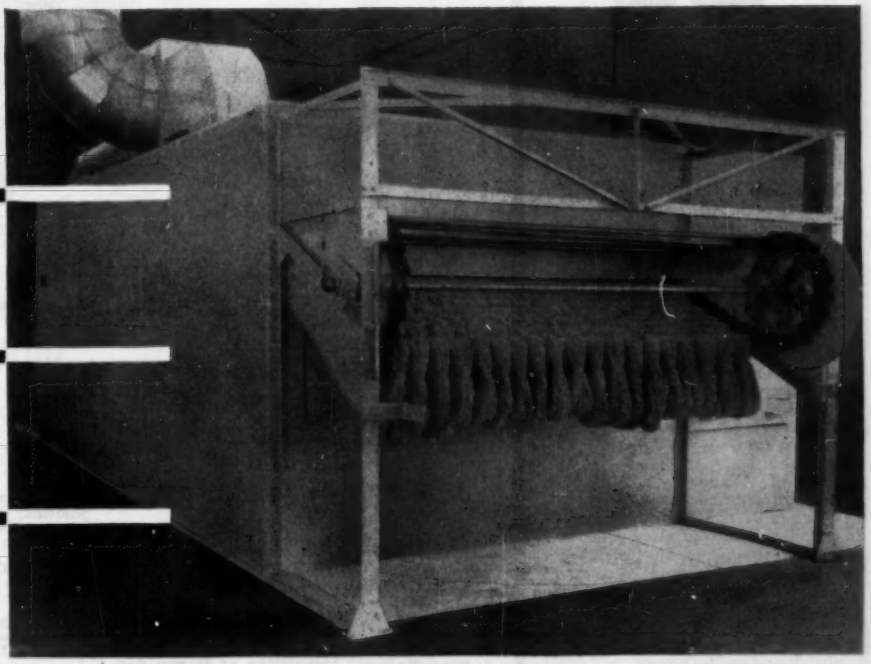
add to your PROFIT from production savings!

LOW OPERATING COST

EASIER INSTALLATION

IMPROVED HOUSING

RAPID DRYING



Proctor Automatic Skein Yarn Dryer with Two-Way air circulation, drying dyed carpet yarn.

PROCTOR EQUIPMENT FOR THE TEXTILE FIELD

AUTOMATIC BLENDING SYSTEMS • WEIGHING FEEDS • PICKERS • SHREDDERS • BALE BREAKERS • SYNTHETIC CARDS • GARNETTS • DRYERS FOR FIBROUS MATERIAL • YARN DRYERS • HOT AIR SLASHER DRYERS • CLOTH CARBONIZERS • ROLLER DRYERS AND CURERS • LOOP AGERS FOR PRINT GOODS • TENTER HOUSINGS • OPEN-WIDTH BLEACH SYSTEMS FOR WOVEN FABRICS • MULTIPASS AIRLAY DRYERS • NYLON SETTING EQUIPMENT • CON-O-MATIC WASHERS • CONTINUOUS BLEACH SYSTEMS FOR PRODUCING TUBULAR KNITS • EQUIPMENT FOR "REDMANIZED" ® SHRUNK-TO-FIT FABRICS • CARPET DRYERS

WRITE FOR DETAILS

PROCTOR DRYERS for skein yarn

Regardless of your output, there is a Proctor Yarn Dryer with the right capacity to make your drying profitable. Truck Dryers for skeins and cakes, or Automatic Dryers for continuous operation, both feature controlled air circulation to provide the *greatest drying uniformity obtainable*. Cotton, wool, silk, or synthetics can be dried at fastest possible rates—show substantial savings in time, labor, and steam requirements. And, as with all Proctor equipment, you can depend on performance guaranteed in terms of the finished product produced. Investigate these profit opportunities now—write today for latest information bulletins.

Proctor

PROCTOR & SCHWARTZ, Inc.

PHILADELPHIA 20, PA.

MANUFACTURERS OF TEXTILE MACHINERY AND INDUSTRIAL DRYING EQUIPMENT

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a

is not only the first letter
of the alphabet, but also
a handy symbol of identification
which everybody from
Aunt Alice to Aardvarks
has appropriated.

No objection here
even though *Alistran,*
the miracle metallic yarn,
gives us a
small proprietary interest.
Only danger is—learning the *A*'s
may leave no time
for the *B*'s and *C*'s.

Luckily, this would work
no hardship where metallic yarn
is concerned, since *Alistran*
is the equivalent of Alpha to
Zed any day . . . and for
good reasons:

First off, Alistran
runs trouble-free *un-supported*
—has *twice the strength* of most
metallics. Alistran also
quills *smoothly* in the fastest
automatic operations.

Talk about *yield!* Alistran gives
a gain of 15 to 20% over other
metallic yarns. Alistran won't
shrink and can be woven on
any type loom or knitting machine.

Then there's *inventory savings:*
Alistran is shipped on
the day of order with overnight
deliveries in many areas.
And *technical assistance*
—Alistran's textile engineers
will visit your mill to advise
on your initial run.

Alistran is brilliant,
non-tarnishable, moth-proof
and dry cleans perfectly.
Telephone or write
for Free Samples of this miracle
metallic today. Metallics men
who know their Alpha's best
Always Ask for Alistran.

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PRODUCTS CORP.
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NEW JERSEY
MARKET 3-1021
*Reg. U. S. Pat. Off.

CALENDAR

November

South Carolina Textile Manufacturers Association, Personnel Div., Ocean Forest Hotel, Myrtle Beach, S. C., Nov. 1 & 2.

AIEE, Fall Textile Conference, North Carolina State College, Raleigh, N. C., Nov. 1 & 2.

STA, North Carolina Div., Clemson House, Clemson, S. C., Nov. 3.

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Nov. 7.

National Association of Woolen & Worsted Overseers, annual convention, Hotel Manger, Boston, Mass., Nov. 9 & 10.

AATCC, Western New England Sect., Rapp's Restaurant, Shelton, Conn., Nov. 16.

22nd National Exposition of Power and Mechanical Engineering, New York Coliseum, New York, N. Y., Nov. 26 to 30.

December

AATCC, Northern New England Sect., annual meeting, Hotel Vendome, Boston, Mass., Dec. 1.

AATCC, South Central Sect., Hotel Patten, Chattanooga, Tenn., Dec. 1.

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., Dec. 5.

AATCC, Southeastern Sect., Atlanta, Ga., Dec. 8.

1957

January

National Cotton Council of America, annual meeting, St. Louis, Mo., Jan. 28 & 29.

Plant Maintenance & Engineering Show, Public Auditorium, Cleveland, Ohio, Jan. 28 to 31.

February

American Society for Quality Control, Textile Div., Harrison Hightower Building, A. French Textile School, Georgia Institute of Technology, Atlanta, Ga., Feb. 25 to 27.

Cotton Research Clinic, National Cotton Council of America, General Oglethorpe Hotel, Savannah, Ga., Feb. 27 to March 1.

March

Textile Research Institute, annual meeting, Hotel Commodore, New York, N. Y., March 14 & 15, 1957.

April

American Cotton Manufacturers Institute, annual convention, Palm Beach Biltmore Hotel, Palm Beach, Fla., April 4 to 6, 1957.

National Packaging Conference and Exposition, sponsored by American Management Association, International Amphitheatre, Chicago, Ill., April 8 to 11.

Alabama Cotton Manufacturers Association, 56th Anniversary Meeting, Buena Vista Hotel, Biloxi, Miss., April 10 to 12.

National Knitted Outerwear Association, annual meeting, Waldorf-Astoria, New York, N. Y., April 23 & 24.

The Underwear Institute, annual meeting, Hotel Traymore, Atlantic City, N. J., April 29.

Knitting Arts Exhibition, Convention Hall, Atlantic City, N. J., April 29 to May 3.

May

The Fiber Society, spring meeting, Clemson House, Clemson, S. C., May 1 & 2.

Cotton Manufacturers Association of Georgia, annual convention, Emerald Beach Hotel, Nassau, Bahama Islands, May 1 to 4.

American Society for Quality Control, annual convention, Masonic Temple, Detroit, Mich., May 22 to 24.

South Carolina Textile Manufacturers Association, annual meeting, The Cloister, Sea Island, Ga., May 30 to June 1.

June

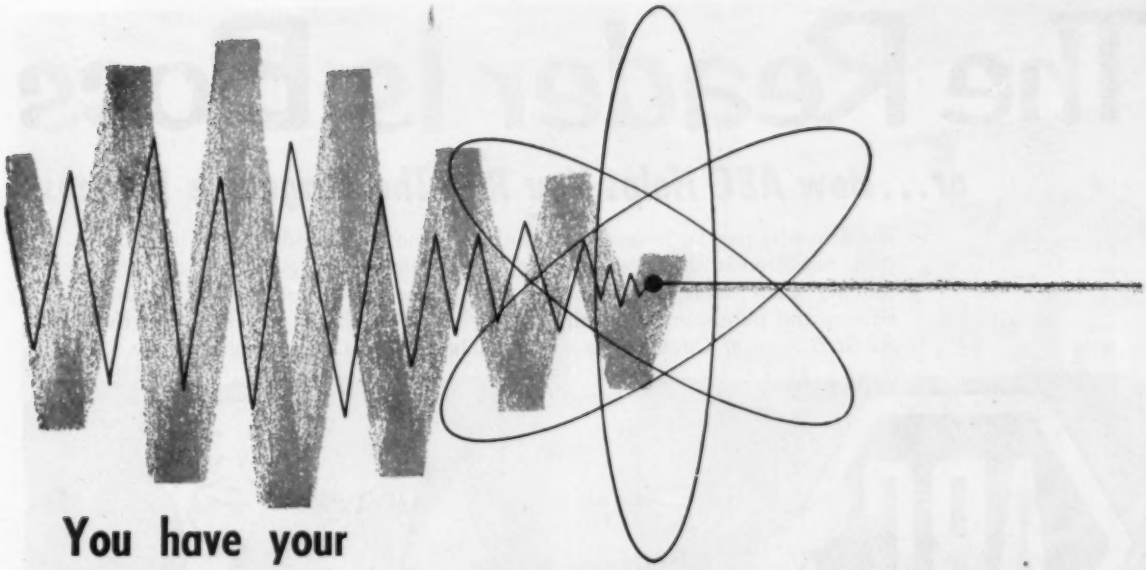
Southern Textile Association, annual convention, Ocean Forest Hotel, Myrtle Beach, S. C., June 20 to 22.

October

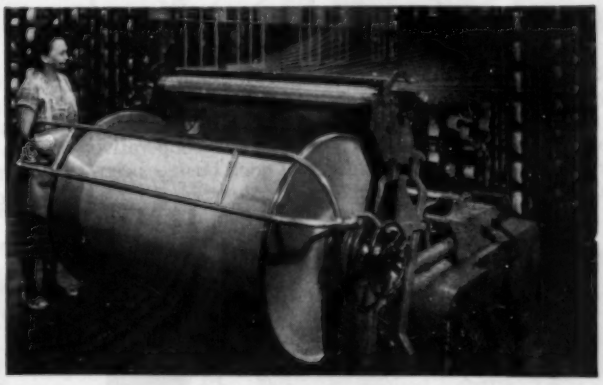
Plant Layout Technical Workshop, Greater Pittsburgh Airport Hotel, Pittsburgh, Pa., Oct. 15 to 19.

November

AATCC, national convention, Hotel Statler, Boston, Mass., Nov. 14 to 16, 1957.



You have your automobile wheels DYNAMICALLY BALANCED. WHY?



For the same reason, *textile beams which run at high speed should be dynamically balanced.* Check the benefits shown below.**

BENEFITS FOR YOU

Reduction of vibration and noise at warper.
Better uniformity of balance on slasher creel.
Reduction of machine maintenance costs.
Higher speeds for greater efficiency and production.
Better quality warps.
Instant proof of beams being in balance.

AGAIN HAYES PIONEERS

Pioneers in the use of electronic strain gauges to maintain strength and reduce weight . . . in aluminum loom beams . . . in nylon section beams . . . in giant size cotton beams . . . in mass production that brought Hayes Beams within reach of all textile mills . . . with resultant annual sales of thousands of Hayes Beams, proving Hayes pioneering in the right direction to meet the growing needs of the textile industry . . . **and now, Hayes pioneers in ELECTRONIC DYNAMIC BALANCING!**

* *Dynamically balanced at slight additional cost.*

Our skilled engineering staff is available to assist you with your problems.

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JACKSON, MICHIGAN
THE WORLD'S LARGEST PRODUCER OF LIGHT METAL BEAMS

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Montreal, Canada

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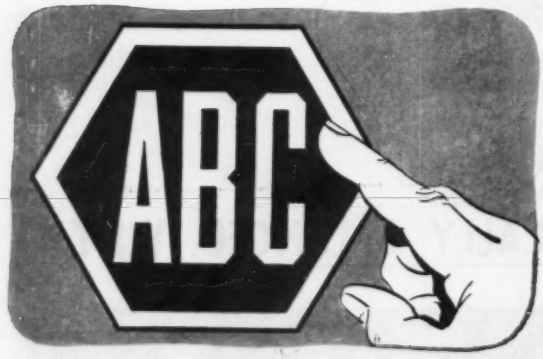
The Reader Is Boss

or... How ABC Helps You Run The Magazine Business

Readers who pay for magazines are always ripe for new ideas, new information, new trends and new technological developments. By giving or withholding their subscription money, reader-customers vote for or against editors and publishers. Counting these "votes" is the important job of the *Audit Bureau of Circulations* – the watchdog of the publishing industry.



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ACCURATE FIGURES — ABOUT YOU are the heart of ABC's job. ABC does a candid, unbiased, certified audit of all subscription figures of member magazines — and of the subscribers' jobs, functions, and locations. These audits help editors to tailor the contents of their magazine to your specific job interests.

YOU'RE THE BOSS when you pay money for any magazine. Your vote of confidence and your renewals of subscriptions are dominant in the thinking of editors and publishers. Advertisers are vitally interested, too, and their support helps earn the dollars needed to do a stronger, more useful editorial job for you.

YOU, THE SUBSCRIBER, WIN when you buy ABC magazines, for this mark is your assurance that you are getting a publication tailored to your needs. McGraw-Hill has been a charter member of ABC and has supported its aims continuously for over 40 years. And ABC, in turn, is responsible in many respects for the high standard of business magazine publishing today

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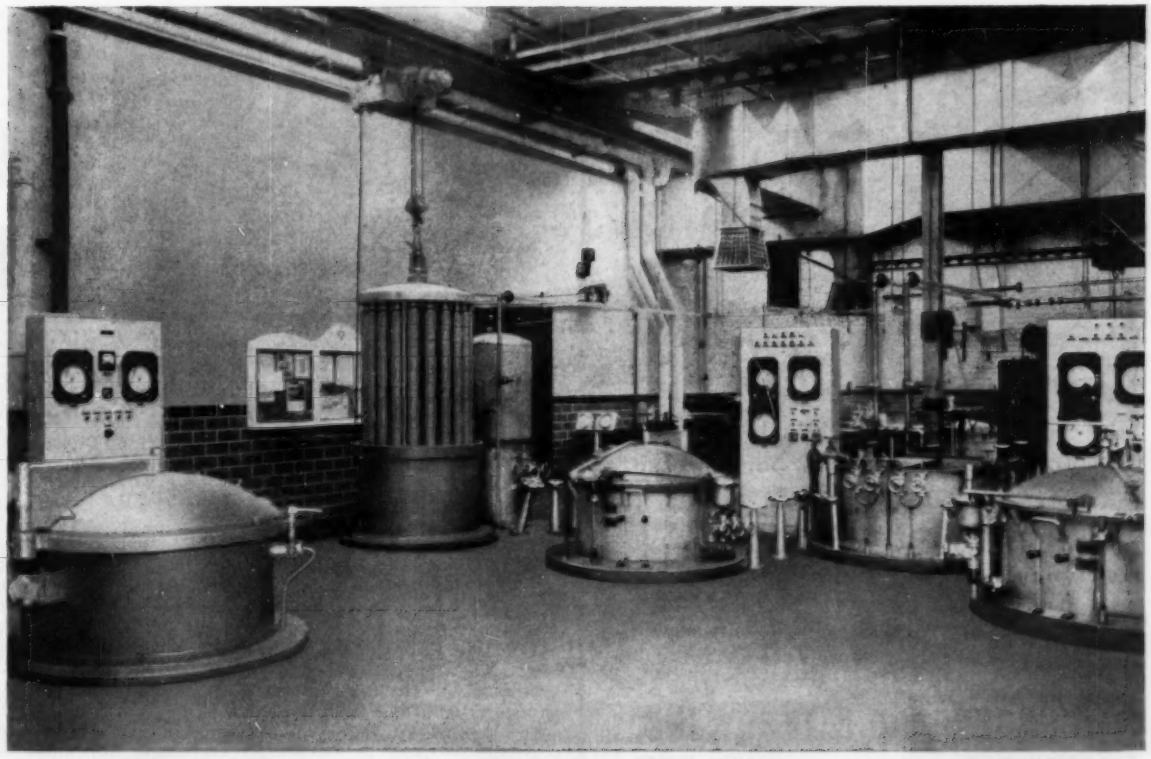

Picture above of the static pressure line at Sevier shows (from left): drying kier and control panel, after-treatment tank, dye kier and control panel, after-treatment tank, second dye kier and control panel. Not shown is a third after-treatment tank.

THIES EQUIPMENT CONTROLLED BY TAYLOR

increases capacity for American Thread Co.

There are two unusual features about the American Thread Company's Sevier, N. C., installation. The dye machine comprises two separate kiers that can be used singly or together, and the dryer operates on the inside-out and outside-in forced hot air principle. Greater uniformity of colors is obtained and drying time is reduced by many hours, increasing the capacity of the equipment proportionately.

The Thies equipment manufactured by B. Thies, Coesfeld, was supplied and installed by Texplant Corporation, Stamford, Conn., and is automatically controlled by a Taylor coordinated package control system.

On the Dryer Control Panel (at left) the first instrument controls the pressure and records the temperature of the hot air, controlling the drying cycle on a temperature and time basis. The second instrument regulates dehumidification.

The Dye Machine Control Panels each have a FULFLEX* Dye Machine Controller regulating rate of rise, hold time and temperature, and a FULSCOPE* Pressure Controller which records inside-out and outside-in pressures. The panels are interlocked for single or dual operation.

We congratulate B. Thies and Texplant Corporation on a smooth running installation and are proud of the fact that Taylor instruments are now standard on Thies equipment. To find out how you can benefit by Taylor's wide experience in the textile industry, call your Taylor Field Engineer or write Taylor Instrument Companies, Rochester, N.Y., or Toronto, Canada.

*Trade Mark

Taylor Instruments
MEAN
ACCURACY FIRST
IN HOME AND INDUSTRY

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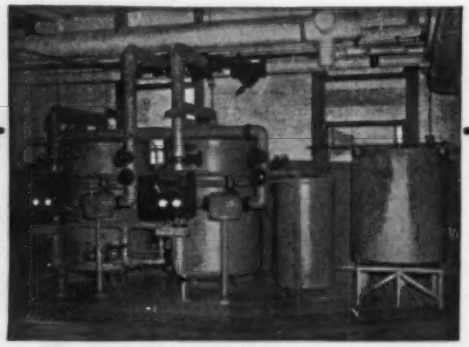

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Producing

CLEAR-IRON FREE 100% SOFT WATER

Often For As Little As 1¢ per 1000 Gallons

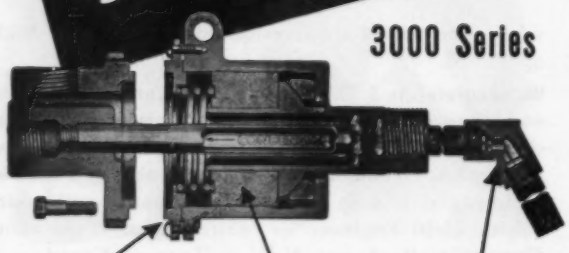
Troubled with harshness, poor finish, uneven shades, redyes, seconds, and other product difficulties—?? The secret of uniformity may lie in your water supply. May we check it for you?

HUNGERFORD & TERRY, INC.

CLAYTON 9 NEW JERSEY

Johnson Joint with SYPHON ELBOW

3000 Series



ASSEMBLY PLATE — Holds internal parts in position when head is removed.

SELF-SUPPORTING — Needs no external supports of any kind.

SYPHON ELBOW — Permits use of straight pipe for syphon. Can be inserted or withdrawn right through the joint.

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on this Series 3000 Johnson Joint and the syphon elbow. Remember Johnson Joints have written an unmatched service record . . . are first choice among mill men and machinery makers alike . . . and can fit all operating needs.

The Johnson Corporation

814 Wood St., Three Rivers, Mich.

NEWS about SUPPLIERS

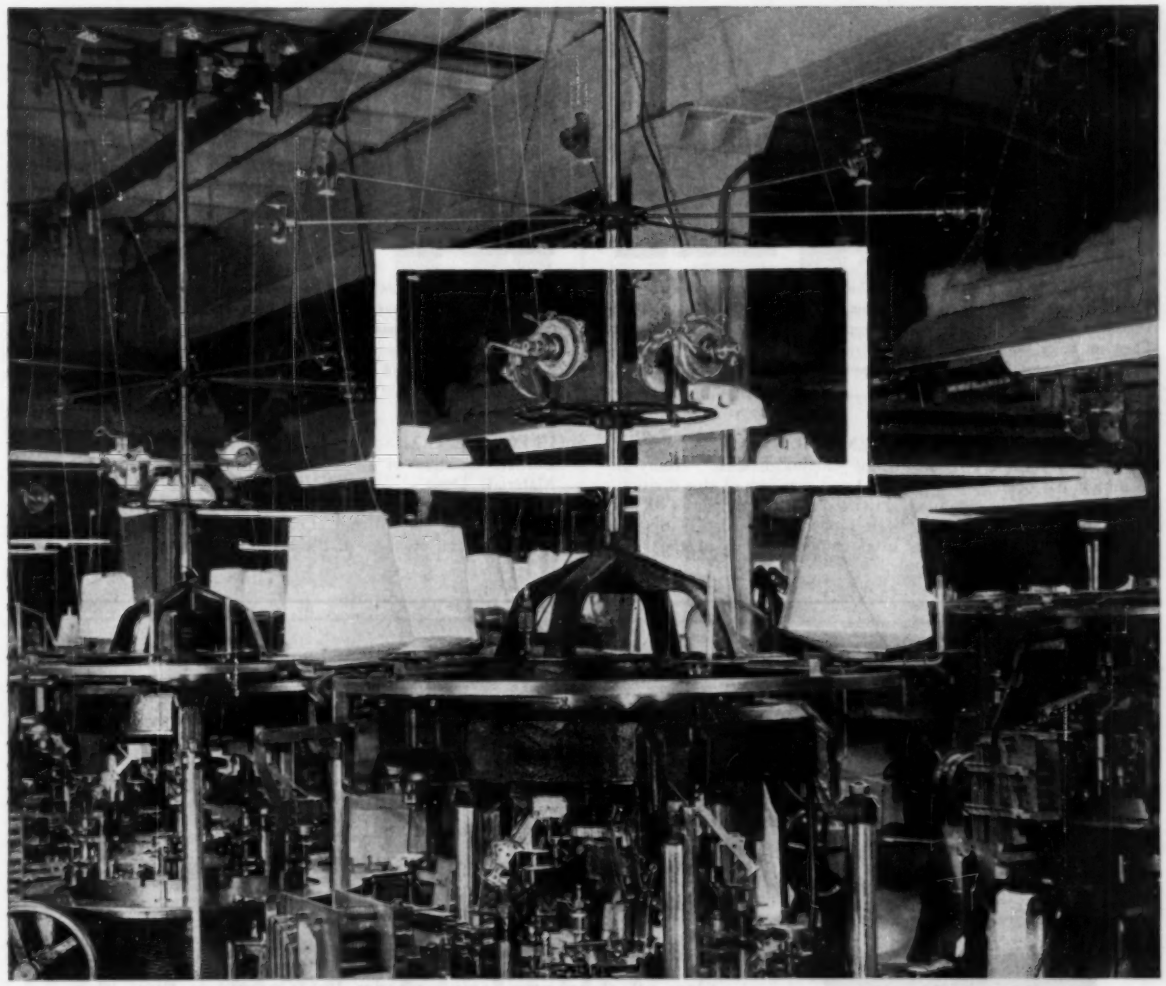
ACME STEEL CO., Chicago, Ill.—Has named Hugh D. Connell manager of the project engineering department. . . . **ALLIED CHEMICAL & DYE CORP., NATIONAL ANILINE DIV.**, New York, N. Y.—Has opened a branch office in Akron, Ohio. R. W. Vail is in charge of the office. . . . **ALLIS-CHALMERS MFG. CO.**, Milwaukee, Wis.—Has appointed R. H. Cline manager of the Industries Group in Pittsburgh, Pa. . . . **AMERICAN VISCOSE CORP.**, Philadelphia, Pa.—Has named Alexander B. Chisholm plant engineer of the cellophane plant at Marcus Hook, Pa. J. O. Ross Engineering Corp., New York, N. Y., has been licensed to manufacture Avisco's web conditioner. . . . **ATLANTIC STEEL CO.**, Atlanta, Ga.—Has named Robert S. Peckham assistant manager of the Warehouse Sales Div.

ATLAS POWDER CO., Wilmington, Del.—Has named Robert A. Olney to the product-development department of the Chemicals Div. . . . **BABCOCK & WILCOX CO.**, New York, N. Y.—Has named Ralph R. Ryan sales representative in the Detroit, Mich., area for the Tubular Products Div. Anthony D. Zar has been named sales representative in the Milwaukee, Wis., district for the same division. . . . **BECKMAN INSTRUMENTS, INC., HELIPORT DIV.**, Los Angeles, Calif.—Has moved to its temporary location at Costa Mesa, Calif. The company plans to move into its new plant in Newport Beach early next year. . . . **A. B. CARTER, INC.**, Gastonia, N. C.—Has named Oscar S. Lapham to the sales staff. Mr. Lapham will be located in Greenwich, R. I. **CENTURY ELECTRIC CO.**, St. Louis, Mo.—Has named J. P. Hoffberger district manager of the Hartford, Conn., office.

CHEMSTRAND CORP., Decatur, Ala.—Has named Edward T. Powers director of market research and product development. Thomas E. Croxson has been named acting group leader of the Acrilan Dye Application Group. . . . **CLEAVER-BROOKS CO.**, Milwaukee, Wis.—Has appointed Jim Marshall Sales Engineering Service, San Antonio, Tex., as a representative. Miller & Chitty Co., Union, N. J., has also been appointed a representative for the company. . . . **DIAMOND ALKALI CO.**, Cleveland, Ohio—Has named David J. Rex process engineer for the Silicate, Detergent, Calcium Div. . . . **DOW CHEMICAL CO.**, Midland, Mich.—Has promoted Ralph C. Hand to head the textile section of the Coatings Technical Service. . . . **E. I. DU PONT DE NEMOURS & CO., INC.**, Wilmington, Del.—Has elected John F. Daley a director, vice president, and member of the executive committee. . . . **EMERY INDUS-**

TEXIZE CHEMICALS, INC., has opened this new plant in Greenville, S. C. The new plant contains 75,320 sq. ft. of manufacturing space.

TENSION TROUBLES: How Kidde helps solve them at Playknit Mills, Inc.



Playknit Mills of West New York, New Jersey, users of "Orlon"* and "Ban-Lon"** yarns, recently equipped *all* their 4-feed Jacquard body-size machines, 12-feed Jacquard jersey and interlock machines with Kidde Standard Compensators. Mr. Alex Posner, owner of the company, reports these results since the installation: *1. Elimination of striped effect due to uneven tension. 2. Elimination of frequent stitch cam adjustment. 3. More uniformly sized stitches.*

Such outstanding results are not unusual. More than 750 textile mills throughout the world use Kidde tension devices to produce a far better product at a lower cost. You can do the same. For more information on Kidde's complete line, write Kidde today.

**Product of E. I. DuPont de Nemours, Inc. **Product of Joseph Bancroft & Sons.*

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TRICOT AND RASCHEL MACHINES • WARPERS • CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • PROCESSING MACHINES • TENSION COMPENSATORS

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The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

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TRIES, INC., Cincinnati, Ohio—Has appointed Dr. Norman O. V. Sonntag to the research staff. . . . **FLETCHER WORKS,** Philadelphia, Pa.—Has named Harry B. Allison chief engineer of the Centrifugal Div. . . .

TOM W. MACY, JR., (left) has been named sales representative for the Fatty Acids Dept., Emery Industries, Inc., Cincinnati, Ohio. ALBERT L. LEFLER (center) has been named sales representative for Emery's Organic Chemical Sales Dept. E. P. HENLEY (right) has been named technical sales representative for Crown Chemical Corp., Providence, R. I.

FOOD MACHINERY & CHEMICAL CORP., New York, N. Y.—Has formed a new Organic Chemicals Div. Henry S. Winnicki has been named president and manager of this division. The commercial-development activities of the company's Westvaco Chlor-Alkali Div. have been moved to South Charleston, W. Va. Al G. Draeger has been named director of the engineering section of the Westvaco Chlor-Alkali research and development department. Christian W. Johnson has been named supervisor of polymer application research, and Daniel Warren has also been named to this section. . . . **GENERAL**

BURTON W. GRAHAM (left) has been named sales director of the Chemical Div., Armour & Co., Chicago, Ill. RALPH C. REINHART (center) has been named director of manufacturing at Baker-Raulang Co., Cleveland, Ohio. ERNEST J. HILL (right) has been named sales manager of the Colton Chemical Co., Cleveland, Ohio.

ELECTRIC CO., Schenectady, N. Y.—Has named Frederick J. Burnett manager of alkyd-resin product sales in the Chemical Materials Dept. . . . **GENERAL LATEX & CHEMICAL CORP.,** Cambridge, Mass.—Has named W. H. Jefferson supervisor of sales in Ashland, Ohio. W. W. Seward has been named general manager of the Dalton, Ga., sales territory. Sales

Cast Off Your Shackles

When your working assets are suddenly confronted with unexpected pressure — a shift in buying habits; delay in raw shipments, abnormal volume increase, or a need for retooling — that's the time to investigate Crompton Factoring. Because that is no time for a large part of your capital to be locked up in receivables.

Take the shackles off your capital, off your production schedules, off your purchasing needs. Let Crompton turn your receivables into immediate cash and thus give you the necessary freedom to operate. Moreover, Crompton Factoring cuts your overhead by eliminating credit and receivable bookkeeping personnel, as well as the chores and costs involved in collections.

CROMPTON RICHMOND COMPANY INCORPORATED FACTORS

The Human Factor

CROMPTON-RICHMOND CO., INC.
1071 Avenue of the Americas, New York 18, N. Y.
Crompton-Richmond-Joel Hurt Co.
Glenn Building, Atlanta 1, Georgia

representatives appointed by the company are: Lawrence F. Haemer, J. E. Gingrich, William J. Watson, and T. G. Tierney. . . . **HERMAS MACHINE CO.**, Hawthorne, N. J.–Has been sold to Paul H. Bluestein & Co., Cincinnati, Ohio. Paul H. Bluestein has been elected president. . . . **JACQUARD KNITTING MACHINE CO., INC.**, Philadelphia, Pa.–Is moving its operations to Wildman Mfg. Co., Norristown, Pa. Both companies are now owned by Draper Corp., Hopedale, Mass. . . . **MINNEAPOLIS-HONEYWELL REGULATOR CO.**, Philadelphia, Pa.–Has elected W. W. Gilmore a vice president. . . . **MINNESOTA MINING & MFG. CO.**, St. Paul, Minn.–Has promoted William P. Hemp to assistant sales manager of tape products. . . . **OLIN MATHIESON CHEMICAL CORP.**, New York, N. Y.–Has named Arthur T. Safford, Jr., and E. L. Lynn to the newly created positions of assistant general manager of the Film Div. Edward T. Hanna has been transferred to the sales staff of the Industrial Chemical Div. in Cincinnati, Ohio. . . . **PITTSBURGH PLATE GLASS CO.**, Pittsburgh, Pa.–Has elected C. Robert Fay vice president in charge of the paint and brush division. . . . **UNIVERSAL WINDING CO.**, Providence, R. I.–Has appointed William V. Goodhue director of research and engineering.

FRED M. MAHAN (left) has been named manager of the new Decatur, Ga., office of Ross Heat Exchanger Div. of American-Standard. R. F. HOWELL, JR., (center) has been named a sales representative for John L. Stickley & Co., Charlotte, N. C. LEE B. WHITCOMB (right) has been named sales manager of the Fiber Div., Virginia-Carolina Chemical Corp., Richmond, Va.

FRANK A. MATHER (left) has been named special representative in the Philadelphia, Pa., area for Goodyear Tire & Rubber Co., Chemical Div. R. E. STEPHENS (center) has been appointed textile-applications engineer at the Powers Regulator Co. Greensboro, N. C., office. JEAN PELLETIER (right) has been named sales engineer for H. F. Livermore Corp., Montreal, Que.

America's Headquarters for Used Textile Machinery

Choose Now from an Outstanding Selection of Late-Model Equipment from Leading Mills.

Spinning, weaving, printing, finishing . . . whatever your machinery needs, count on Intertex to provide the right answers at the right prices.

Among larger mills we are now liquidating are Botany and Princeton, symbols of quality the world over. Such well-known authorities as Sidney H. Scheuer and Larry Weltman will give your needs their confidential attention.

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Huyck's *new* *Pre-conditioned* COMPRESSIVE SHRINKAGE BLANKETS

- REDUCE BREAK-IN TIME
- LAST LONGER
- MINIMIZE COSTLY REPROCESSING
- ASSURE SMOOTH FINISH
- HOLD TO SPECIFIED DIMENSIONS
- REQUIRE FEWER MACHINE ADJUSTMENTS

Discuss your specific requirements with your Huyck Sales and Service Engineers.

A Product of the Huyck Industrial Fabrics Development Program

F. C. HUYCK & SONS

KENWOOD TEXTILE PRODUCTS

FIRST IN QUALITY . . . FIRST IN SERVICE

Established 1870 • Rensselaer, New York

Balance?

Yeah Man!

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ENGINEERED *Plastics* INCORPORATED

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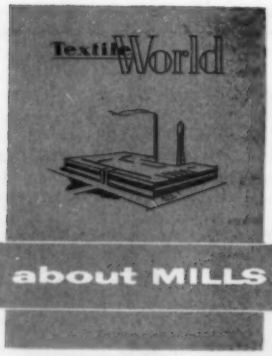


NEWS about MILLS

COTTON MILLS

Chase Bag Co., Portland, Ore., is building a 25,000-sq.-ft. addition. The additional area will be used for warehouse space.

Columbia Narrow Fabric Corp., Rolling Fork, Miss., has completed its new plant.

Dominion Textile Co. Ltd., Montreal, Que., has purchased a continuous dyeing machine and a continuous rope-bleaching range.

Echota Cotton Mills, Calhoun, Ga., has installed 12 Adamstop units on its Saco-Lowell 9x4½-in. roving frames.

Fairfax Mill, a division of West Point Mfg. Co., Fairfax, Ala., is installing 96 deliveries of Whitin Even-Draft, 14 regular draft, and two Inter-Draft roving frames.

Langdale Mill, a division of West Point Mfg. Co., West Point, Ga., is installing eight Whitin regular-draft roving frames and 12 Superflex spinning frames.

Lanett Mill, a division of West Point Mfg. Co., Lanett, Ala., is installing 28 Whitin regular-draft roving frames. Super-Draft will be applied to 115 H & B spinning frames.

Limestone Mfg. Co., Gaffney, S. C., has completed the installation of Bahnson air conditioning at its Plants No. 2 and 3.

Riverdale Mill, a division of West Point Mfg. Co., Riverdale, Ala., is installing 64 deliveries of Whitin Even-Draft drawing.

Sherman Mfg. Co., Sherman, Texas, has installed six Adamstop units on its Saco-Lowell 12x6-in. roving frames.

Spencer Mountain Mills, Spencer Mountain, N. C., is discontinuing operations.

WOOLEN AND WORSTED MILLS

Anglo Fabrics Co., Webster, Mass., is building an addition that will increase the company's capacity by 50%. New equipment imported from Belgium, France, and England will be installed.

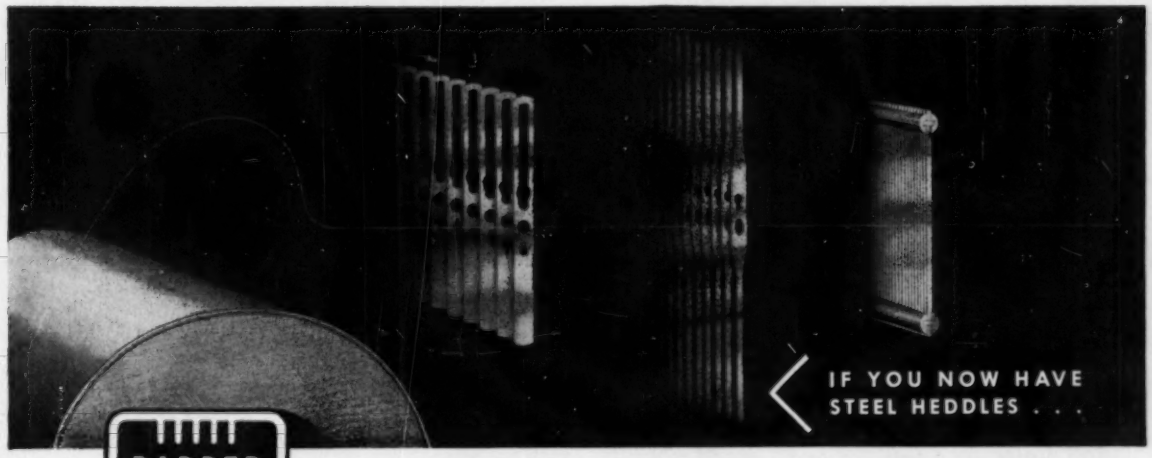
Colonial Woolen Mills, Inc., Cleveland, Ohio, has sold the controlling interest in the company to a group headed by N. S. Glauber, Jr. Mr. Glauber has been elected president of the company.

Massachusetts Mohair Plush Co., Lowell, Mass., has purchased the Talbot Mills, Billerica, Mass. No change will be made in Talbot's present operations.

SYNTHETICS MILLS

Callaway Mills Co., has transferred its Non-Woven Unit to the Elmrose Div., LaGrange, Ga.

Why not take advantage of potential savings?



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STEEL HEDDLES (KEYHOLE-TYPE)
REED

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for Steaming
and Calendering
TUBULAR
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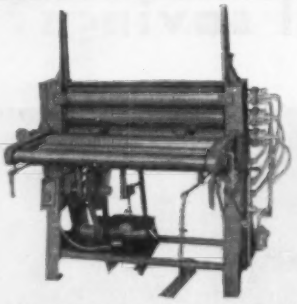

This fast, efficient 3-roll calender has heated rolls, with patented rotary joints, and flexible metal hose, eliminating packing. A stream of live steam comes in contact with cloth only as it passes over the spreader. A foot pedal to lift rolls apart frees hands to start cloth.

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2-Roll Calender—Made with heated or cold rolls, plain or felt covered. Has foot pedal to lift rolls apart. Comes complete in same sizes of rolls as 3-roll machines.

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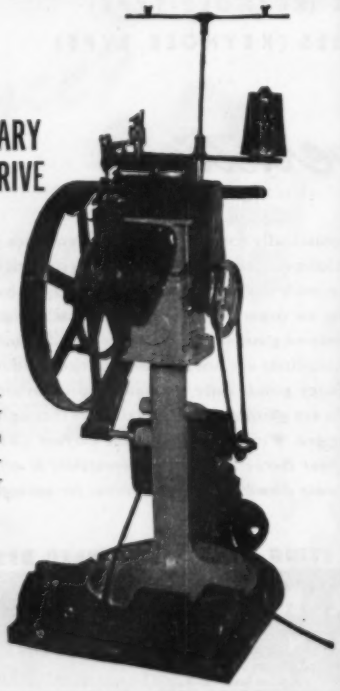
MODEL 8-D-1

PORTABLE ROTARY WITH MOTOR DRIVE



No exposed gears. Self lubricated gear reduction unit. Chain drive to *Merrow Butted Seaming Head* or *Dinsmore Single Chain Stitch Head*. Automatic cloth stripper. Wide range of stitch requirements.

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KNITTING MILLS

Austin Hosiery Mills, Inc., Albemarle, N. C., has opened a new finishing plant. The new addition has added 15,000 sq. ft. of manufacturing space.

Bamberger-Reinthal Co., Cleveland, Ohio, has installed a Philip multifeed interlock machine.

Crest Hosiery Mill, Hickory, N. C., has completed a 1,500-sq.-ft. addition to its plant. Part of the new addition will be used for office space and the balance will house the finishing department.

Clover Knitting Mills, Philadelphia, Pa., has leased the mill formerly occupied by Gotham Hosiery Co., Philadelphia. Clover expects to move into the 117,000-sq.-ft. plant in February.

Grandview Hosiery Co., Inc., Newton, N. C., has changed its name to Moretz Hosiery Mills, Inc.

Lawrence Knitting Mills, Inc., Charlotte, N. C., has moved into its new 10,000-sq.-ft. building. The company will install two 36-feed Supreme knitting units.

William G. Leininger Knitting Co., Mohnton, Pa., has completed an addition to its mill. New machinery includes Scott & Williams Model KN 400- and 474-needle circular knitting machines.

Line-Mode Hosiery Mills, Hickory, N. C., has completed a 7,200-sq.-ft. brick-and-concrete-block addition. The company has ordered 12 Scott & Williams links-and-links Komet knitting machines.

London Knitting Mills, Philadelphia, Pa., will move to a new location at Jasper & Butler Sts. New equipment will be installed in the 90,000 sq. ft. of floor space.

Louise Knitting Mills, Durham, N. C., has been purchased by William S. Griffin. The name will be changed to Imperial Hosiery Mills.

Madaris Hosiery Mill, Inc., Hickory, N. C., has been incorporated with an authorized capital stock of $100,000. Officers are: William C. Madaris, president and secretary; Walter Huffman, vice president; Jewitt Madaris, treasurer.

Nu-Maid Hosiery Mills, Philadelphia, Pa., is moving its finishing plant to Mount Pleasant, Tenn.

Reaco Hosiery Mills, Hickory, N. C., has completed a two-story, 105x50-ft. addition to its mill. An order has been placed with Scott & Williams for 16 ETR machines.

DYEING AND FINISHING PLANTS

Crown Converting Co., Lincolnton, N. C., is completing an expansion program that will increase production by 25%. Smith-Drum package-dyeing equipment is being installed.

General Textile Processors, Inc., Paterson, N. J., has been formed by American Textile Printers Co., Inc., Mylan Finishing Co., Inc., Colonial Piece Dye Works, all of Paterson, N. J.; Capital Piece Dye Works, Garnersville, N. Y.; Delaware Finishing Co., Easton, Pa. The headquarters for the new company will be at 18 Market St., Paterson.

Nelly Bee Products, Hickory, N. C., has started operations in its new dyehouse. The 40x60-ft. building contains four dye tubs and three extractors.

North Carolina Finishing Co., Salisbury, N. C., has completed the installation of a waste-water heat-recovery system.

Trenton Dyeing & Finishing Co., Trenton, Ont., has completed a 40x110-ft. concrete-block-and-brick addition to its mill. The company's offices will be located in the new addition.

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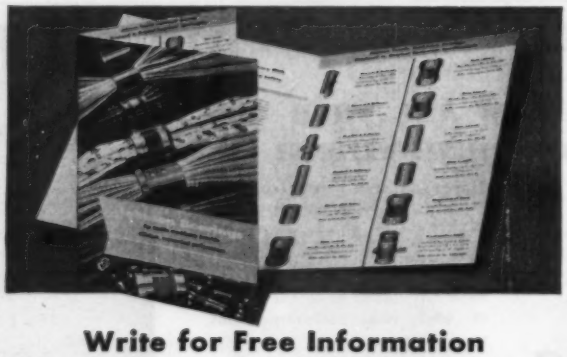

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Johnson Textile Bearings

NEWS about MEN

Jack B. Baker has been named divisional works manager of Kendall Cotton Mills, Charlotte, N. C.

Harold Bickford has been named overseer of carding at Charles W. House & Sons, Inc., Unionville, Conn.

George M. Bott has been named general manager of Champlain Mills, Winooski, Vt.

George Burpee has been named plant superintendent at James Lees & Sons Co., Bridgeport, Pa.

Max Caldwell has been named overseer of carding at Dresden Mills, Dresden, Ohio.

Ely R. Callaway, Jr., has been named a vice president of Raeford Worsted Corp., Greensboro, N. C.

Dan O. Campbell has been promoted to secretary of Waverly Mills, Laurinburg, N. C., and not Mr. Connell, as was previously reported.

Ray E. Chandler has been elected vice president of Novelty Yarns Corp. and Tryon Processing Co., both in Tryon, N. C.

Howard Connelly has been promoted to assistant general superintendent of Rock Hill Printing & Finishing Co., Rock Hill, S. C.

D. P. Cook, Jr., has been named vice president in charge of cotton at West Point Mfg. Co., West Point, Ga.

Fred Cook has been named overseer of weaving on the day shift at Massachusetts Mohair Plush Co., Lowell, Mass.

BEN HELLER has been elected president of William Heller, Inc., Woonsocket, R. I.

Durwood W. Costner has been named a vice president at Rock Hill Printing & Finishing Co., Rock Hill, S. C.

John Cunningham has been named assistant superintendent of Karastan Rug Mill, Leaksville, N. C.

William Darby has been named overseer of dyeing for Worsted Finishers, Inc., West Warwick, R. I.

A. L. Denton has been named overseer of carding at Lewisburg Mills, Lewisburg, Pa.

Norman L. Duberstein has been named a vice president of Raeford Worsted Corp., Greensboro, N. C.

Paolino Gerli has been elected president of Cheney Bros., Inc., S. Manchester, Conn.

Joseph A. Golden has been elected president of Raeford Worsted Corp., Greensboro, N. C.

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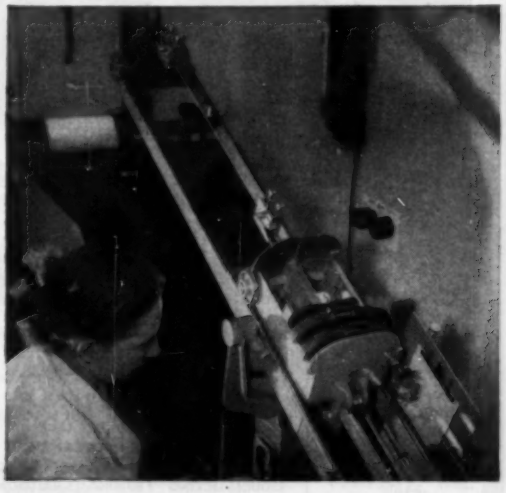

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Caldwell TANKS AND TOWERS

NEWS ABOUT MEN Continued

Howard J. Gordon has been named divisional superintendent in charge of economy, safety, laundry, plissé, claims, and allowances at Rock Hill Printing & Finishing Co., Rock Hill, S. C.

Robert F. Gregory has been elected a vice president and director of Bestok Underwear Co., Inc., Tower City, Pa.

Charles Hagberg has been named master mechanic at Wyandotte Worsted Corp., Central Village, Conn.

Robert A. Harper has been elected president of Columbia Mills, Inc., Minetto, N. Y.

Charles Higging has been named assistant to the manager at Kendall Cotton Mills, Pelzer, S. C.

A. A. Hobbs has been named vice president and general manager of Aberfoyle Mfg. Co., Philadelphia, Pa.

Herbert Holt has been named overseer of finishing at Kennebec Mills, Fairfield, Me.

James J. Hoyne has been elected a vice president of La-France Industries, Inc., New York, N. Y.

Ernest Jackson has been named superintendent of Alexander Wool Combing Co., Lowell, Mass.

William J. Jarrett has been named general manager of James Lees & Sons Co., Rabun Mills, Rabun Gap, Ga.

Marvin A. Julian has been named weaving overseer at Starr Mills Corp., Starr, S. C., and not carding overseer as was previously reported.

Stanley I. Landgraf has been named plant superintendent at Dixiana Mills, Laurinburg, N. C.

Joseph D. Linnville has been named overseer of the preparation department at Seminole Mills, Statesville Div., Statesville, N. C.

John Loomis has been named overseer of dyeing on the second shift at A. G. Dewey Co., Quechee, Vt.

E. Maney has been named head dyer at Fairmount Dye Works, Woonsocket, R. I.

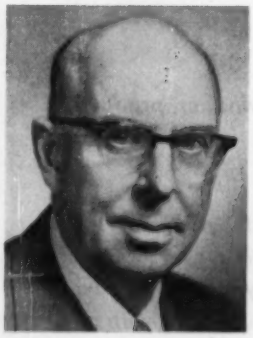
Jack Maslin has been named production manager at Slingsby Mfg. Co., Brantford, Ont.

Royce McCaughey has been named to head the dyeing and finishing operations at Massachusetts Mohair Plush Co., Lowell, Mass.

Charles M. McFadden has been named operating superintendent of Ramseur Worsted Mills Corp., Ramseur, N. C.

Alex P. Nicholson has been named overseer of dyeing at High Rock Mills, Philmont, N. Y.

S. L. Paine has been named superintendent of Burlington Mills Corp., Flint No. 2 Plant, Gastonia, N. C.



A. N. WEEKS (left) has been named director of production at Bemis Bro. Bag Co., St. Louis, Mo. F. G. BEMIS, JR., (right) has been named manager of the company's East Pepperell, Mass., plant.

CHARLES VOSS has been named technical superintendent of the Ridgedale Plant, Standard-Coosa-Thatcher Co., Chattanooga, Tenn.

BENN R. ECKSTEIN has been named general manager of Alamac Knitting Mills, Indian Orchard, Mass.

Sidney T. Perkins has been named to head cotton operations at Anchor Rome Mills, Inc., Rome, Ga.

Alfred H. Randall has been named assistant superintendent of the Alabama Mills division of Dan River Mills, Inc., Birmingham, Ala.

Virgil Redden has been named assistant superintendent of Tallassee Mills, Tallassee, Ala.

Don Rich has been named general plant manager at A. Schottland, Inc., Rocky Mount, N. C.

F. A. Ruel has been named overseer of spinning at Bridgewater Woolen Co., Bridgewater, Vt.

P. L. Ryder has been named overseer of spinning at the Albertville, Ala., plant of Kendall Cotton Mills' Pelzer Plant, Pelzer, S. C.

Ernest W. Sams has been named traffic manager at Fieldcrest Mills, Inc., Spray, N. C.

L. A. Savage has been named divisional manager of the cotton mills of Kendall Cotton Mills, Charlotte, N. C.

W. W. Sharp, Jr., has been elected president of Acclaim Hosiery Mills, Inc., High Point, N. C.

Paul V. Shields has been elected chairman of the board of National Automotive Fibres, Inc., Detroit, Mich.

B. C. Shults, Sr., has been named an industrial engineer at Virginia Woolen Co., Winchester, Va.

George L. Staff has been elected a vice president of Raeford Worsted Corp., Greensboro, N. C.

W. Herman Taylor has been named manager of Kendall Cotton Mills' Pelzer Plant, Pelzer, S. C.

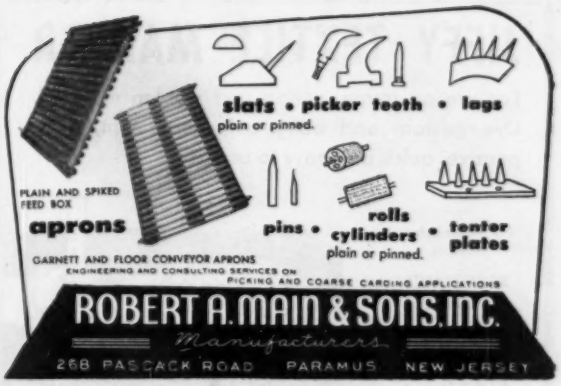
Benjamin Thomas, Jr., has been named assistant manager of the Fieldcrest Mills, Inc., synthetic-fabric plant, Spray, N. C.

L. W. Townsend, O. B. E., M. C., has been named to the executive committee of Wabasso Cotton Co. Ltd., Three Rivers, Que.

Elbert Tripp has been named technical superintendent at Virginia Woolen Co., Winchester, Va.

Allan W. Vint has been named vice president in charge of all Ban-Lon and related operations at Rose Mills, Inc., Philadelphia, Pa.

Dave Vipperman has been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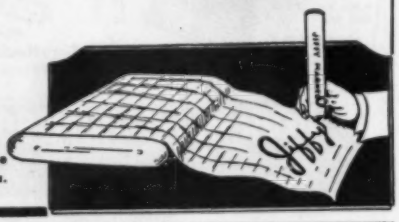

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The bobbin that gives you the best run for your money. Want samples? Write us!

Makers of PRECISION Automatic Loom Bobbins

NEW ENGLAND BOBBIN & SHUTTLE CO.
34 Crown Street
NASHUA, N. H.

When You Change Your Address . .

It will help us keep your copies of TEXTILE WORLD coming to you each month if you will promptly advise us of any change of address.

Director of Circulation
TEXTILE WORLD,
330 West 42nd St., New York 18, N. Y.

Please change the address of my Textile World subscription.

Name .....

Old Address .....

New Address .....

New Company Connection .....

New Title or Position .....

promoted to superintendent of the Grier Div. of Rock Hill Printing & Finishing Co., Rock Hill, S. C.

Herman Weisz has been named divisional superintendent in charge of the color, soaper, and ager departments of Rock Hill Printing & Finishing Co., Rock Hill, S. C.

Carl J. Wiedmann has been elected a vice president of Raeford Worsted Corp., Greensboro, N. C.

Robert B. Williams has been named administrator and assistant to the president at Russell Mfg. Co., Middletown, Conn.

R. G. Young has been named vice president of the Shirting Div., Burlington Mills Corp., Greensboro, N. C.

OBITUARY

Robert K. Argo, 47, personnel and public relations director for Alabama Mills, Inc., Birmingham, Ala.

John A. Bakstran, 75, retired chief engineer of Fitchburg Yarn Co., Fitchburg, Mass.

George A. Bates, 77, retired secretary-treasurer of Palmetto Cotton Mills, Inc., Palmetto, Ga.

Samuel N. Boyce, 91, a director of the former Flint Mfg. Co., Gastonia, N. C.

Claude E. Brierley, 71, former general overseer of weaving for Utica & Mohawk Cotton Mills, Inc., Utica, N. Y.

Stokes F. Burtis, 63, former manager of the Winston-Salem and Lincolnton, N. C., plants of Duplan Corp.

Clarence W. Camp, 49, secretary of Kenwood Mills Ltd., Amprior, Ont.

William J. Devlin, Sr., president and treasurer of Charles Devlin & Sons, Philadelphia, Pa.

Dr. Camille E. Dreyfus, 78, chairman of the board of Celanese Corp. of America, New York, N. Y.

Charles M. Guthrie, 78, retired secretary of Nolde & Horst Co., Reading, Pa.

W. Rex Hughes, 58, superintendent of the weave room at Manetta Mills, Monroe, N. C.

James T. Hunter, 64, president of James Hunter Machine Co., North Adams, Mass.

Fred G. La Piana, 71, director of textile research for Stein Hall & Co., New York, N. Y.

William B. Lawson, secretary and assistant treasurer of Pacolet Mfg. Co., New Holland, Ga.

William P. Ligon, 59, vice president in charge of cotton for Reeves Bros., Spartanburg, S. C.

Edward F. O'Reilly, 61, president of Columbia Mills, Inc., Syracuse, N. Y.

Frances V. Poletti, 58, retired manager of Duplan Corp., Grottoes, Va.

Arthur P. Pousland, 83, retired assistant treasurer of American Woolen Co., New York, N. Y.

Stanley H. Wheelock, 77, president and treasurer of Stanley Woolen Co., Uxbridge, Mass.

When all the shouting is over and the last campaign speech has been made, isn't this what all the struggle is really about?

You and your neighbors are going to march to the polls November 6 and settle things the American way.

Not by fists or by force, not with a penalty if you don't vote, or the secret police checking up to see if you did.

You'll vote because it's the thing to do.

Vote as you please, of course—but vote.

Vote for the party and the candidates you honestly believe will represent you best.

But also vote because you believe in this democracy of ours and you want to keep it the way it is—a country where you can have your say and nobody else can say it for you.

Everybody you know will be there.

We'll see you at the polls.

VOTE NOVEMBER 6th!

he's working for you

THIS FELLOW IS TRAINED IN YOUR BUSINESS. His main duty is to travel the country — and world — penetrating the plants, laboratories and management councils . . . reporting back to you every significant innovation in technology, selling tactics, management strategy. He functions as your all-seeing, all-hearing, all-reporting business communications system.

THE MAN WE MEAN IS A COMPOSITE of the editorial staff of this magazine. For, obviously, no one individual could ever accomplish such a vast business news job. It's the result of many qualified men of diversified and specialized talents.

AND, THERE'S ANOTHER SIDE TO THIS "COMPOSITE MAN," another complete news service which complements the editorial section of this magazine — the advertising pages. It's been said that in a business publication the editorial pages tell "how they do it"—"they" being all the industry's front line of innovators and improvers — and the advertising pages tell "with what." Each issue unfolds an industrial exposition before you—giving a ready panorama of up-to-date tools, materials, equipment.

SUCH A "MAN" IS ON YOUR PAYROLL. Be sure to "listen" regularly and carefully to the practical business information he gathers.

McGRAW-HILL FOR BUSINESS

McGRAW-HILL PUBLICATIONS

Manufacturer's Agent

We are looking for an aggressive manufacturer's agent calling on the Southern textile trade to handle on an exclusive basis our line of textile bobbins, metal specialties and equipment.

We are a progressive company, and have a good line with potential. We are seeking hard-hitting representation, and we will cooperate to the fullest with the right connection.

ACROMETAL PRODUCTS, INC.

616 North Fifth Street

Minneapolis 1, Minnesota

EMPLOYMENT OPPORTUNITIES

The Advertisements in this section include all employment opportunities—executive, management, technical, selling, office, skilled, manual, etc.

Positions Vacant
Positions Wanted
Part Time Work
Civil Service Opportunities
Selling Opportunities Wanted
Selling Opportunities Offered
Employment Agencies
Employment Services
Labor Bureaus

RATES

DISPLAYED

The advertising rate is $17.00 per inch for all advertising apearing on other than a frequency basis. Contract rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

UNDISPLAYED

$1.50 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.
Position Wanted ads are ½ of above rate.
Box Numbers—counts as 1 line.
Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW ADS and inquiries to Classified Advertising Division of TEXTILE WORLD, 330 W. 42nd St., N. Y. 36, N. Y. December Issue Closing November 14th.

REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)
LOS ANGELES: 1125 W. 6th St. (17)

POSITION VACANT

Textile Engineer; long established modern weaving plant in Mexico City seeks fabric development technologist, take full charge designing, constructing and weaving of dress, shirting and upholstery fabrics. Preferably experienced in synthetic and mixed fibres on dobby and jacquard automatic C & k and Draper looms. Age 30-45. Substantial salary and yearly bonus. Write for interview with principal in N. Y. early November. Give full details. P-3300, Textile World.

SELLING OPPORTUNITY OFFERED

Manufacturers Representative(s) Active, sell imported densified Pickersticks, Shuttles and Rawhide Pickers in Southern States and New England on commission basis. Person(s) now selling other non-competitive weaveroom supplies with loom experience prfrd. Send resume. Replies confidential. RW-3280, Textile World.

POSITIONS WANTED

Progressive middle aged Textile man desires responsible position and chance for investment with medium size Weaving Plant. Relocate. PW-2977, Textile World.

Assistant Manager—Strong manufacturing experience in loomfixing, designing and purchasing. Excellent references. Age 30 single. PW-3118, Textile World.

Tricot Foreman—Knitting machines, experienced in setup and maintenance as well as employee training. Educated Germany, 33 yrs. old, married, speak English well. Seek permanent position with chance to advance. PW-3276, Textile World.

Man with wide experience in the manufacture of braids and braided trimmings desires change. PW-3207, Textile World.

SELLING OPPORTUNITY WANTED

Excellent Salesman with established following in Pennsylvania, New Jersey, Maryland and Virginia with several years experience calling on weavers, dyers and finishers, and carbon manufacturers desires additional line. RA-3330, Textile World.

AVAILABLE

RASCHEL MECHANIC

Full experienced with laces, edgings, powernet, novelties, lay-outs analysis. Excellent refs. Would relocate with family.

PW-3299 TEXTILE WORLD
Class. Adv. Div. P.O. Box 12, N. Y. 36, N. Y.

Don't forget the

BOX NUMBER

When answering the classified advertisements in this magazine don't forget to put the box number on your envelope. It's our only means of identifying the advertisement you are answering.

JOIN a fast growing, fast moving enterprise

Opportunities for

CHEMISTS
PHYSICISTS
CHEMICAL ENGINEERS
MECHANICAL ENGINEERS & DESIGN ENGINEERS
TEXTILE ENGINEERS
PRODUCTION ENGINEERS

Rapid growth of synthetic fiber development creates unlimited opportunities for technical men who want to be on the forefront of this exciting field. Openings now in fiber process development, mechanical development, product development, and production.

Men with 0-15 years experience in their profession will be considered.

Interviews arranged promptly. Send resume to:

Textile Fibers Department
Carbide and Carbon Chemicals Company
P. O. Box "N"
South Charleston, West Virginia
Attention: W. H. Billings, Jr.

New York Personnel Dept. T.
Carbide and Carbon Chemicals Company
30 East 42nd Street
New York 17, New York
Attention: Mr. E. R. Brown

PRODUCT SALES MANAGER

with experience in selling to textile finishing trade in North and South, to administer program of leading AAAI corporation manufacturing textile chemicals. Knowledge of trade and minimum 5 years experience as Sales Manager required. Will operate out of New York area. Liberal salary and benefits including company furnished car and bonus based upon performance.

Address all replies to:
TW-1362, 221 W. 41 St. NYC.

CONFIDENTIAL EMPLOYMENT SERVICE

For textile mills seeking new personnel and mill executives seeking new positions.

WE INVITE YOUR INQUIRIES
CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston 8, Mass.
Telephone Liberty 2-6547
Over 55 Years in Business

SEE CHEMSTRAND'S AD ON PAGE 191 OF THIS MAGAZINE

Positions available for

ENGINEERS

(Chemical, Mechanical, Metallurgical, Textile, Industrial, Instrument and Civil) and

CHEMISTS

(Organic, Physical, Analytical—Instrumental and Wet Method, Textile Chemists.)

Write to Technical Personnel Department

THE CHEMSTRAND CORPORATION
Decatur, Alabama

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

BUSINESS OPPORTUNITIES — EQUIPMENT - USED or RESALE

UNDISPLAYED RATE:

$1.50 a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

PROPOSALS, $1.20 a line an insertion.

BOX NUMBERS count as one line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED RATE:

The advertising rate is $14.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

Send New ADVERTISEMENTS or Inquiries to Classified Adv. Div. of Textile World, P. O. Box 12, N. Y. 36, N. Y. for December issue closing Nov. 14th

WANTED

(Additional Wanted Advertisement on page 280)

"SPECIALIST IN THE DISMANTLING, MOVING AND ERECTING OF TEXTILE MACHINERY"

LOUIS P. COTE, INC.

317 Blucher Street, Manchester, N. H.
Telephone: NAtional 3-1533 or 4-4271

- Rigging
- Packing
- Fully Insured
- Export Crating
- Local and Interstate Moving

DYESTUFFS

Will buy your surplus and obsolete dyes and chemicals for cash.

NEW ENGLAND PRODUCTS CO.
91 Oliver St. Boston, Mass.
Established 1919

WANTED—DYESTUFFS

Chemicals — Pigments — Solvents
Plasticizers — Plastics — etc.
By-Product — Wastes — Equipment

CHEMICAL SERVICE CORPORATION
80-10 Beaver St. New York 5, N. Y.

JOBBER—EXPORTER

WANT TO BUY

Close outs, of textiles of all descriptions; also Industrial Nylons, Dacrons, Orlons.

CELENA TEXTILE CORP.
366 Broadway New York City
Phone: CO 7-2419

WANTED

Rodney Hunt open or enclosed

Stainless Steel Dye Tub

Motorized for knit goods 8, 9 or 10 ft. width

W-3963, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

BALERS WANTED

New and Rebuilt Baling Presses

AMERICAN BALER MACHINES CO., INC.
123-10—101st Avenue
Richmond Hill, L.I., N. Y.

WANTED

WIDE LOOMS

With large shuttle boxes to weave rag rugs 9' wide.

W-3121, Textile World
520 N. Michigan Ave., Chicago 11, Ill.

PRINTING HEAD REQUIRED

60" cylinder or wider with Doctors, Colour boxes, Furnishers, Mandrels, etc. for two or more colours, or would consider complete machine. Write

W-3270, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

IN STOCK

CENTRIFUGES AND CENTRIFUGALS—Bird, De Laval, Sharples, Fletcher, Tolhurst, AT&M, etc.

MARCO FLOW MASTER CONTINUOUS process with Homogenizer, Kombinator, Reactor, mixer, all stainless steel.

STAINLESS STEEL, storage and mixing tanks, from 30 gal. to 10,500 gal.

PERRY EQUIPMENT CORP.
1430 N. Sixth St. Philadelphia 22, Pa.
ST 4-7210

FOR SALE

4000—78 inch harness frames with iron ends. 14 inch heddles with and without floating bars.

100,000—8¾ inch automatic bobbins

One 72 inch extractor

One large lot of used card clothing and belting

100 metal trucks.

BERNARD GREEN
46 June Street Terrace
Worcester, Mass.

MILLER MACHINERY CO.

66 RAILROAD AVE. PATERSON, N. J.
Tel. Sh 2-5467-8

Textile Machinery and Supplies

BOUGHT AND SOLD
Warpers • Winders & Quillers • Looms

HOSIERY MACHINES

used and rebuilt

KNITTERS — RIBBERS — LOOPERS
CYLINDERS — DIALS — TRANSFERS
HOSIERY NEEDLES AND PARTS

JOS. BRESANI
N. W. Cor. Hancock & Somerset Streets
Phila. 33, Pa.

FOR SALE

USED & REBUILT
ECONOMY BALING PRESSES
Electric & Hand
All Sizes in Stock

FERTIK & COMPANY
9th & Tioga Sts., Phila. 40, Pa.

GASTONIA TOOL GRINDING & GENERAL REPAIR CO.

MANUFACTURERS OF

CARD PLATES - MOTE KNIVES - PICKER BEATERS - ALL TYPES OF FLUTED ROLLS

C. C. Boyd, Gen. Mgr. — Phone University 5-9607 — 1212 Baker Blvd. Gastonia, N. C.

AUTO. FILLING WINDER

WHITIN-SCHWEITER Automatic Filling Winder. 9 Spindles. Type MS. New and unopened in original crates at Whitin factory.

FS-3285, Textile World.
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

TWISTER SPOOLS

20000 6" x 3" Twister Spools in good condition 15¢ each f.o.b. Manheim, Pa. Samples available.

RAYBESTOS-MANHATTAN, INC.
UNITED STATES ASBESTOS DIVISION
MANHEIM, PENNSYLVANIA

LEGAL NOTICE

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDMED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233)
SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION

Of Textile World published monthly, with add'l issue in July, at Albany, New York for October 1, 1956.

1. The name and address of the publisher, editor, managing editor, and business manager is: Publisher, McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York 36, N. Y.; Editor, Prentice M. Thomas, 330 West 42nd St., New York 36, N. Y.; Managing editor, Louise E. Wille, 330 West 42nd Street, New York 36, N. Y.; Business manager, Thomas Macaluso, 330 West 42nd Street, New York 36, N. Y.

2. The owner is McGraw-Hill Publishing Company, Inc., 330 West 42nd St., New York 36, N. Y. Stockholders holding 1% or more of stock are: Donald C. McGraw and Willard T. Chevalier, Trustees under Deed of Trust dtd. 1/14/21, as amended, m/b James H. McGraw, deceased; Donald C. McGraw and Harold W. McGraw as Trustees under Indenture m/b James H. McGraw dated 7/1/37, as amended; Donald C. McGraw, individually; Harold W. McGraw, individually; Elizabeth M. Webster, c/o Donald C. McGraw (all of 330 West 42nd St., New York 36, N. Y.); Mildred W. McGraw, Madison, New Jersey; Grace W. Mehren, 536 Arenas St., La Jolla, Calif.; Genoy & Co., P. O. Box 491, Church St. Station, New York, N. Y.; Merrill, Lynch, Pierce, Fenner & Beane, 70 Pine St., New York, N. Y.; Touchstone & Co., c/o Wellington Fund, Inc., Clayment, Delaware.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

McGRAW-HILL PUBLISHING COMPANY, INC.
By JOHN J. COOKE, Secretary.

Sworn to and subscribed before me this 14th day of September, 1956.
[SEAL] JANET A. HARTWICK.
(My Commission expires March 30, 1957)

LIQUIDATION SALE

BLEACHING, DYEING, FINISHING AND PRINTING MACHINERY AND EQUIPMENT OF THE FORMER BELLMAN BROOK BLEACHERY, FAIRVIEW, N. J.

2,000 COPPER ROLLERS W-J-K BORE, 42", 44", 45", 46", 48" Long.

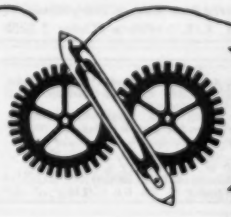
2—Rice, Barton & Fales Print Machines, 6 colors, 48" wide.
1—Butterworth Pneu. Padder, 3 Roll, 8 Ton, 50" wide.
1—Rodney Hunt S.S. 10' Slack Rope Washer, Pneu.
3—Textile Mercerizer Ranges 60' long x 60" wide.
1—Rodney Hunt Open Width S.S. Washer, 6 Pneu. Squeezers 60", Age 1951.
1—Amer. Laundry Stainless Steel Cascade Washer.
3—V.V. Cast Iron Vat Agers, 30' long x 60" wide.
1—Morrison Simplex Sanforizer Range, 50" wide.
10—Butterworth & W. J. 90' Swing Tenter Frames & AG Housings 50" to 60" wide.
2—Sets 32 Butterworth Copper Dry Cans, 96" wide.
1—Arlington Soaper, 7 compts., 50" wide, steel tanks.
1—R.B.F. Hydraulic Mandrel Jack.
2—Cypress Acid Agers, 30' Long.
5—Eppenbach Portable Homogenizers
1—Premier Colloid Mill, Type U4
4—Textile Cloth Beamers, 50", motor driven.
7—P&W Chinamen Doublers, 56" & 46"
1—LeBlond Heavy Duty Lathe, 8' Bed, 16' swing.
1—Lodge & Shipley Lathe, 5½' bed, 27" swing.
1—Scott Cloth Tester, Model J2
2—IBM Electric Typewriters
2—Monroe Calculators, Model CAA
1—Underwood Sunstrand Electric Payroll Machine, age 1952.
1—Underwood Sunstrand Electric Bookkeeping Machine, age 1950
8—Underwood Typewriters, 1-28" wide.
1—Addressograph Unit with Graphotype, Model 1900.
1—Frieden Electric Calculator

OTHER EQUIPMENT AVAILABLE

42—C&K W3 Looms, 82", 25 harness
1—David Gessner Semi-Decater, 72" w/pump.
1—Uxbridge Gentle Air Slasher, 82" headway, 1950
2—R&L Stainless Steel Enc. Dye Boxes, 6'
18—Lowell 40" Cards, 28" Doffer
2—Foster 102 Cone Winders, 120 spdls, ea.
1—Cocker Ball Warper with Creel
2—Foster Model 57 Doublers, 100 spdls., 1950
11—Werner S.S. Dye Jiggs, 70", 1954
32—C&K C6 Looms, 60", 25 harness, 1946
2—Saco-Lowell Lap Winders, Model 37, 1949
1—Barber Coleman High Speed Quiller,, 30 spdls., 1949
16—Atwood Uptwisters, Model 110, 208 spdls., 2 lb.
24—Spdls. Hacoba Filling Winders, 1954

POWER EQUIPMENT

1—Reiley RO Boiler, 60,000 lbs., 1949
1—DeLaval Steam Turbine Generator, 750 KW, 230 volts, D.C.
1—Elliott Steam Turbine Generator, 750 KW, 230 Volts, D.C.
1—General Electric Steam Turbo Generator, 500 KW, Extraction Type, 230 volts, A.C.
1—General Electric Steam Turbo Generator, 1,000 KW, Extraction Type, 230 volts, A.C.
1—General Electric Steam Turbo Generator, 1,000 KW, Non-Condensing, 230 volts, A.C.



Republic

TEXTILE EQUIPMENT COMPANY

40 Worth Street, New York 13, N. Y., U. S. A.

REFINANCING • APPRAISALS • PURCHASE & SALE
LIQUIDATIONS OF MILL PROPERTIES • PURCHASE AND SALE OF USED MACHINERY

TEXTILE MACHINERY LIQUIDATIONS
MODERN EQUIPMENT

MILL #1

20—Reiner 1947 model High Speed TRICOT MACHINES model RT-1, 28 gauge, 168".
1—Reiner COMBINATION MAGAZINE CREEL, 1947 model CR 600 ends, 8¼" x 20" for cones and pirns.
72—Hayes ALUMINUM SPOOLS, 21" x 21", 4½" bore.
328—Hayes MAGNESIUM SPOOLS, 21" x 21", 4½" bore.
16—Sets of Reiner TRICOT BEAM SHAFTS 2¾".
2—Lyon Raymond Hydraulic Beam LIFT TRUCKS.
1—Reiner NEEDLE MOULD.
2—Textile Machine THREADERS, 28 gauge, 7".
13—Air-Perme-Ator model #2 AIR CONDITIONERS.
83—Sets of Reiner PATTERN WHEELS for RT-1 Machines.

MILL #2

4—James Hunter GARNETTS, 2 Cylinder, 20" dia. x 60", double 16" dia. doffers, Ball Bearing, Roller chain drives, clothed 12 to 22 threads per inch with some variations. Equipped with Hopper Feed, Waste Savers, complete Floor Apron, Compression and windup rolls, double Variable Speed Drives, 20 Hp. electric motors on each Garnett.
2—Complete WOOL OPENING, WASHING & DRYING TRAINS, Dewsberry PICKER, Automatic Hunter Feeder, Hunter Scouring Bowl, Squeeze Rolls and an eight sectioned Hunter STOCK DRYER, motors and all electrical equipment.

MILL #3

5—Rome Machy. & Foundry ROTARY TUMBLER DRYERS, 1952, 4 Machines 7' x 14', 1 machine 6' x 11½'. Cylinders of heavy steel mesh or of perforated sheet metal. All equipment with Gear Reducer Motor Drives and individually motor driven fans.
1—Birch Bros. 168" two roll SQUEEZE SET, 1952, rubber rolls 16" dia., 15 ton pressure with 58 PSI. on Air Cylinders, sealed roller bearings, hydraulic letoff, pan 14'5" x 2' 1½". Driven by 10 Hp. Gear Motor.

McDOWELL ASSOCIATES INC.

General Offices 41-E, 42 Street
New York City 17, N. Y.
Phone: Murray Hill 2-7417

Warehouse No. 1 N. Front
Dock & Water Sts., Hudson, N. Y.
Phone: Hudson 8-3211

COMPRESSORS
VACUUM PUMPS

For the Finest in Rebuilts

1902 AMERICAN 1956

93 CFM 100 psi 7x6 Ingersoll-Chicago
137 CFM 100 psi 7x7 Ingersoll ES1
160 CFM 60 psi 8x7 Ingersoll ES1
173 CFM 100 psi 9x8 American-Ingersoll
208 CFM 300 psi 9-4¾ x9 Pa. 3AT2
234 CFM 100 psi 9x9x9 Chicago (St.) New
254 CFM 115 psi 10x10 Ingersoll ER1
283 CFM 35 psi 10x7 Ingersoll ES1
290 CFM 75 psi 10x9 Ingersoll ES1
354 CFM Vacuum 14x5 Ingersoll
360 CFM Vacuum 14x8 Oliver
364 CFM Vacuum 14x6 Ingersoll
368 CFM 100 psi 12x10 Ingersoll ER1
434 CFM Vacuum 14x7 Worthington HB
464 CFM 100 psi 12x11 Ing. ES1
622 CFM Vacuum 18x6 Ing.
686 CFM 100 psi 14x13 Ing. ES1
730 CFM 50 psi 15x11 Ing. ES1
1030 CFM Vacuum 20x10 Chic.
1717 CFM 20 psi 23x13 Ing. ES1
2018 CFM Vacuum 26x11 Ing. ES

NEW IN 1950
1546 CFM 100 psi 21-12½x14 Chic. OCE
250 HP 3-60-4000

American Air Compressor Corp.
Dell & Tex Streets — North Bergen, N. J.

2 ATWOOD MOD. 200 REDRAWS
SPINDLESS—6"T—50 SP.—H-S

30—ATWOOD & FLETCHER DOUBLERS
½ LB. & 1 LB. PKG.

6 H&W & LYDON STEAM BOXES

160 NO. 50 CONERS
3-30' TAPER "L" DRIVE — GEAR BOX "A" — PINEAPPLE & S.S. TROUGHS

12 U. S. TEXTILE HEADLESS PKG. D.D. UPTWISTERS—TAPERED ATTACHMENTS—184 SP.

300 SPINDLES
WHITIN SCHWEITER AUTO. WINDERS

8 SIPP REDRAWS
4½" & 6" T.—60 SPINDLES—H.S.

6 ATWOOD S. D. UPTWISTERS

30 ATWOOD D.D. UPTWISTERS
UTILITY & 110 MODELS

50 M—9" QUILLS
WITH FEELER

BOBBINS—SPOOLS—QUILLS—*All Sizes & Types*

PENNSYLVANIA SPOOL & EQUIPMENT CO.

425 LEHIGH ST. ALLENTOWN PA. Phone 3-7545

DYEING MACHINES

2—Smith Drum Rotary Dyeing Machines, 300 lb. & 200 lb., in excellent condition; and Extractors, 40", 48", 60" American Monel Open Top; also Stainless or Monel laundry type Washers, 42 x 84" & 42 x 96"; 2—Stainless Paddle Dryers, 50 lb. and 100 lb.

All equipment very reasonably priced.

WILLIAMS MACHINERY CO.
37-37 9th Street, Long Island City, New York
STillwell 6-6666

FOR SALE — IN STOCK

CARDING—WOOLEN
2—Whitin 3-cyl 60x60. Dble Rub 96-end Tapes. 550V MD. Yr 1947.
5—D&F 3-cyl 60x60. Sql Rub 96 & 120-end Tapes. Peraltas. BD.
2—Whitin 3-cyl 48x48. Sql Rub 96-end Tapes. 550V MD.
1—Abbington Vac Stripper System. I-R 26x11 Vac Pump w/75-HP 550V drive. Yr 1947.
6—Duesberg-Bosson 72" Peraltas.
2—Duesberg-Bosson 48" Peraltas.

CARDS—COTTON
11—S-L 40" Revolving Flat Top Cards. Yr 1946-18.
1—S-L 40" Roller Top Card. Yr 1948.

SPINNING—WOOLEN & WORSTED
4—Whitin 120 x 6½ x 5" Ring Mdl E Wool Spg. MD. Yr 1946.
4—Whitin 144 x 4 x 2-5/16" Ring Mdl A Wool Spg. MD.
24—Whitin 200 x 4½ x 3" Herr Ring Mdl FW3 French Spg. Frames. MD. Yr 1947-44.
50M—Wstd BW Spg Bobbins 8½ x 2¼ Black En.

PIN DRAFTERS
10—Warner & Swasey Quad Pin Drafters.
10—Warner & Swasey Dual Pin Drafters.
900—Fiber 15x36 Seamless Cans.
1—Holdsworth Sql Hd Gill Reducer. Ball Del. Yr 1952.

WEAVING
6—C&K 82" Mdl W3 Auto 4x1 Box Woolen Looms. 220V MD.
102—C&K 76" Mdl W3 Auto 4x1 Box Woolen Looms. MD.
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1—P&W 4-cyl 66½" Brushing & Sanding. Steam Box. 2-wire & 2-sand rolls.
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1—P&W Dixie Shear 80½".
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2—Gessner 72 x 20 Mdl PD Rotary Cloth Presses. Reeves Dr.

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20—Fidelity Sql Side 9-Skein Yarn Reels. 550V MD.
2—Toledo 500# Printweigh Floor Scales. 46x38 Plat.
1—Toledo 1000 x 1# Dial Floor Scale. 72x48 Plat.
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Belt driven. Complete with motorization and auxiliary equipment.

50—LATE-TYPE NYLON CONERS
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Stainless steel emulsion rolls and troughs. Pineapple attachments. L-drive, gear gain. Motorized in units of 12 spindles.

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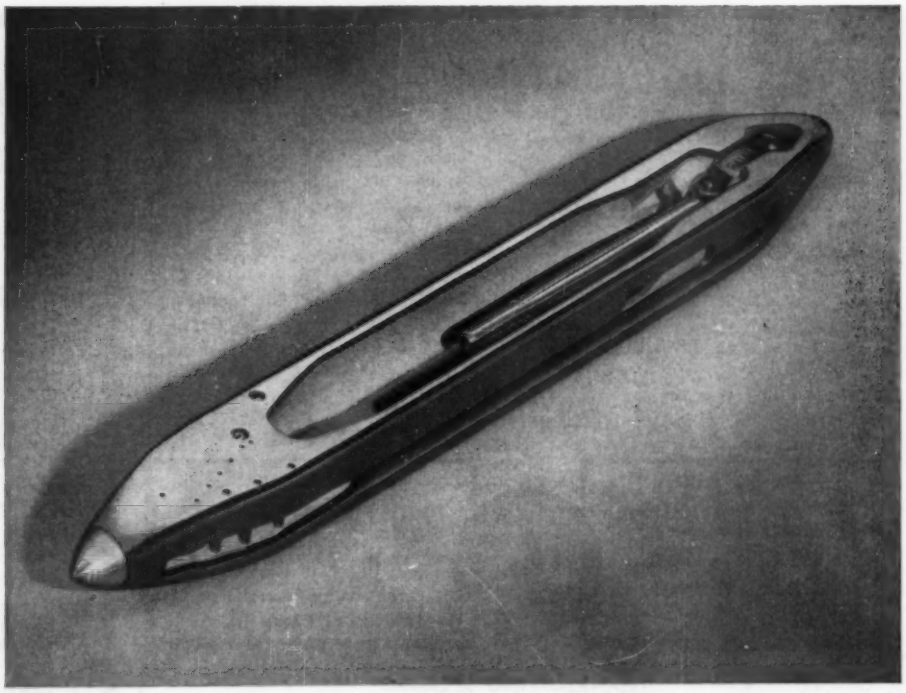

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Howard Bros.	80	T
Hungerford & Terry, Inc.	260	B
Hunt Mach. Co., Rodney	86	E
Huyck & Sons, F. C. Noone Industrial Fabrics Div.	264	E
Hyatt Bearings Div. General Motors Corp.	185	O, Q
Industrial Dryer Corp.	267	T
Industrie-Werke-Karlsruhe	284	E
Ingersoll-Rand Co.	23	H
Intercontinental Dynamics Corp.	61	K
Intertex Corp.	263	N
Jacobs Northern & Southern Div., E. H.	200	R
Jacquard Knitting Mach. Co., Inc.	2	L
Jiffy Textile Marker Co.	272	E, L, R
Johnson Corp., The	260	H
Johnson Bronze Co.	268	O, Q

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Keever Starch Co.	164	C P
Kennedy Car Liner & Bag Co., Inc.	285	L
Kidde Mfg. Co., Inc.	235, 261	E M
Klauder-Weldon-Giles Mach. Co.	8	
Kuljian Corp., The	270	
Link-Belt Co.	7	Q
Lockwood Greene Engineers, Inc.	32	N
Loom Service Co.	272	N
Loper Co., Ralph E.	271	N
Lubriplate Div., Fiske Bros. Refining Co.	248	N
Ludell Mfg. Co.	204-205	E H
Lunkenheimer Co.	47	
Main & Sons, Inc., Robt. A.	271	T
Manhattan Rubber Div.	42	Q
Maple Flooring Manufacturers Assoc.	10	B T
Marquette Metal Prods. Div.	237	
Mathieson Chemicals Olin Mathieson Chem. Corp.	192	C H R
M-B Prod. Co.	286	
McBride, Ed. J.	6	
Micro Switch Div. of Minneapolis-Honeywell Reg. Co.	83	F
Minneapolis-Honeywell Reg. Co. Industrial Div.	221	K
Micro Switch Div.	83	F
Monsanto Chem. Co. Plastic Div.	211	C E G
Mount Hope Machinery Co.	65	
Multi-Tex Prods. Corp.	256	
National Aniline Div., Allied Chem. & Dye Corp., Chem. Div.	17	C G R
Fiber Div.	64	
Naugatuck Chem. Div. U. S. Rubber Co.	69	C
New England Bobbin & Shuttle Co.	272	
Nitrogen Div. Allied Chem. & Dye Corp.	59	C
Noone Ind. Fabrics Div. of F. C. Huyck & Sons	264	E RT
Nopco Chem. Co.	79	C M
Norgren Co., C. A.	216	
Oakite Products, Inc.	269	C
Olin Mathieson Chem. Corp. Industrial Chemicals Div.	192	C L
Ordnance Gauge Co.	234	
Penick & Ford, Ltd.	232	C
Perfecting Service Co.	230	H
Pick Mfg. Co.	233	E
Pneumafil Corp.	229	T
Portland Co., The	270	E L RT
Potts Co., Horace T.	215	H
Powell Co., William	5	H
Powell Valves	5	H
Procter & Gamble	60	C
Proctor & Schwartz Inc.	255	E
Pure Oil Co.	25	M
Raybestos-Manhattan, Inc. Manhattan Rubber Div.	42	Q
Reeves Division Reliance Elec. & Eng'g. Co.	179	Q
Refined Products Co.	2nd Cover	C
Riggs & Lombard, Inc.	70	E
Roberts Co.	9	T
Rodney Hunt Mach. Co.	86	E
Rohm & Haas Co.	213	C
Rollway Bearing Co., Inc.	58	O Q
Roy & Son Co., B. S.	252	T
Ryerson & Son Inc., J. T.	230	O
Saco-Lowell Shops	22, 168	T
Sargent's Sons Corp., C. G.	214	E
Schlumberger & Cie.	72	T
Schweiter Ltd.	28	T
Scott Testers, Inc.	269	K
Shore Instrument & Mfg. Co., Inc.	271	K
Simco Co.	242	E L RT
Sirrine Co., J. E.	3rd Cover	N
SKF Industries, Inc.	16	O Q
Societe Alsacienne De Constructions Mecaniques	183	T
Solvay Process Div. Allied Chem. & Dye Corp.	187	C
Sonoco Prods. Co.	45	T
Southern Shuttles Div. Steel Heddle Mfg. Co.	66	R

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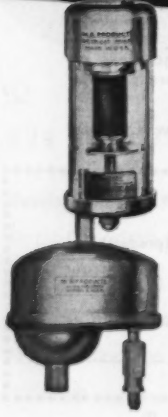

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Square D Co.	207	F
Stanley Works, The	222	K
Steel Heddle Mfg. Co.	66	R
Stowe-Woodward, Inc.	181	E
Supreme Knitting Mach. Co., Inc.	33	I
Taylor Co., Halsey W.	240	N
Taylor Fibre Co.	282	O
Taylor Instrument Cos.	259	K
Taylor, Stiles & Co.	242	T
Texas Co., The	4th Cover	M
Textile Machine Works	88	L
Tompkins Bros.	238	L
Torrington Co., The	251	L
U. S. Rubber Co.		
Mechanical Goods Div.	51	Q
Naugatuck Chem. Div.	69	C
U. S. Steel Co.	243	O
Universal Winding Co.	188	T
Utica Novelty & Mill Specialty Co.	266	E L
Veeder-Root, Inc.	31	K
Vickers Inc.		
Div. of Sperry Rand Corp.	41	E H O
Victory Ring Traveler Co.	18	T
Wallerstein Co., Inc.	85	C
Warner & Swasey Co.	19	T
Western Felt Works	208	L RT
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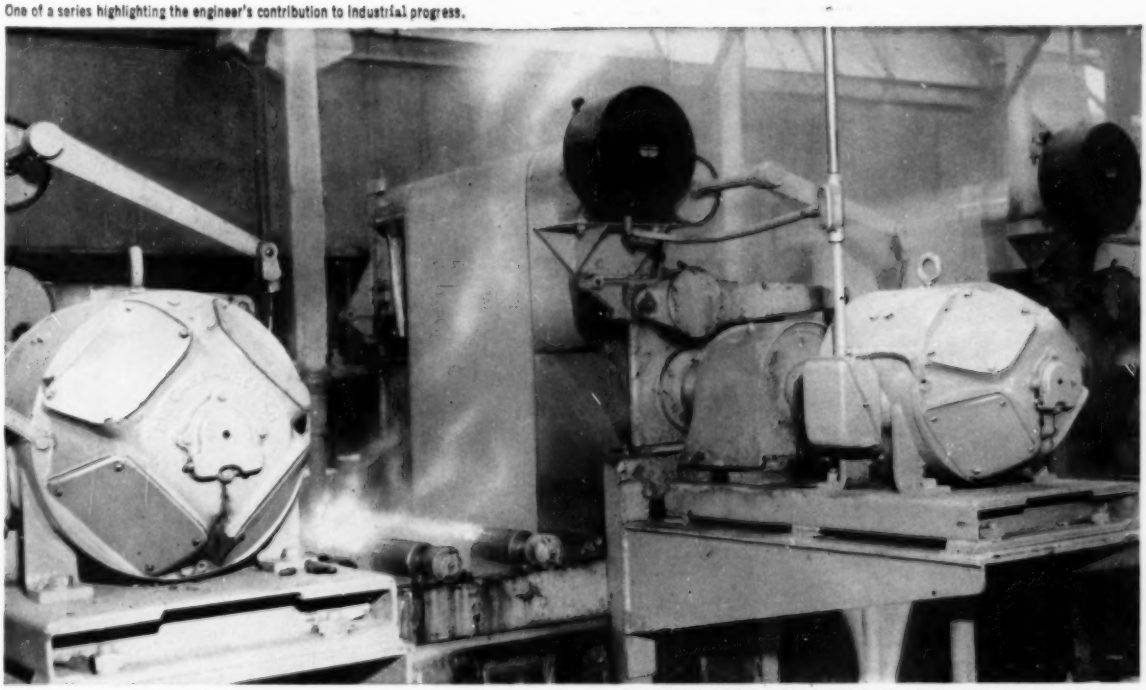

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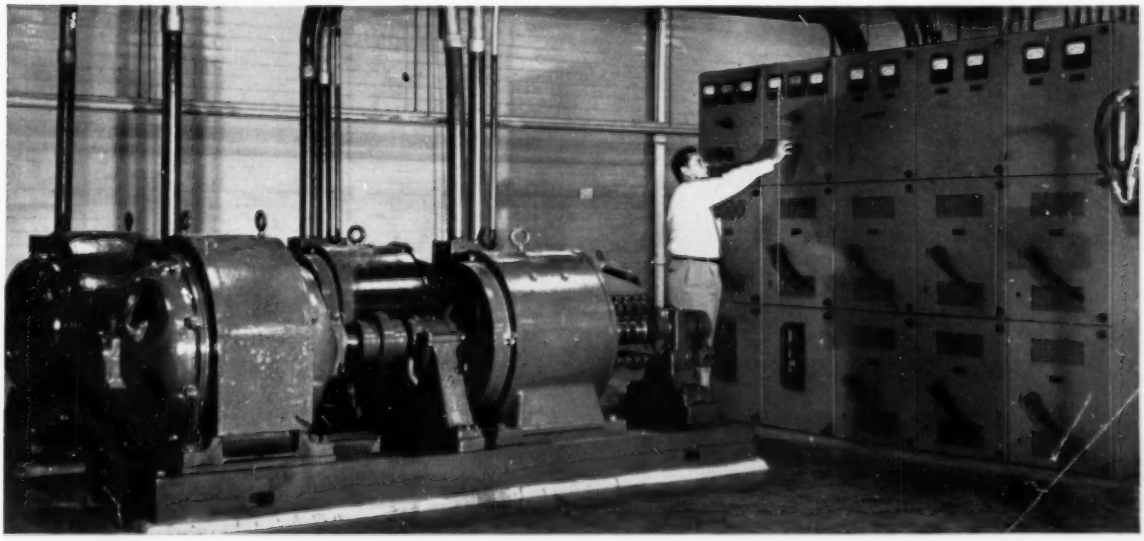

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